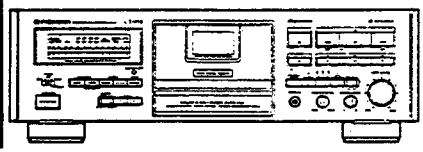
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2735

STEREO CASSETTE DECK

CT-43
CT-S820S
CT-S620
CT-S620-G

CT-43, CT-S820S, CT-S620 AND CT-S620-G HAVE THE FOLLOWING:

Type	Model				Power Requirement	Remarks
	CT-43	CT-S820S	CT-S620	CT-S620-G		
KU/CA	○	–	–	–	AC120V	
HEM	–	○	○	○	AC220 – 230V, 230 – 240V (Switchable) *	
HB	–	–	○	–	AC220 – 230V, 230 – 240V (Switchable) *	
SD	–	–	○	–	AC110V, 120 – 127V, 220V, 240V (Switchable)	

* Change the connection of the power transformer's primary wiring.

● **For the following: CT-S820S/HEM; CT-S620/HEM, HB and SD; CT-S620-G/HEM, refer to page 37.**

CONTENTS

1. SAFETY INFORMATION ····2
2. BLOCK DIAGRAM ····3
3. EXPLODED VIEWS, PACKING AND PARTS LIST··4
4. FL INFORMATION ····11
5. PCB CONNECTION DIAGRAM ····13
6. SCHEMATIC DIAGRAM ····21
7. PCB PARTS LIST ····27
8. ADJUSTMENTS ····31
9. IC INFORMATION ····35
10. FOR CT-S820S/HEM, CT-S620/HEM, HB, SD AND CT-S620-G/HEM ····37
11. PANEL FACILITIES ····47
12. SPECIFICATIONS ····48

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
© PIONEER ELECTRONIC CORPORATION 1993

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols -▮▭▭- (fast operating fuse) and/or -▮▭⊠- (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible -▮▭▭- (fusible de type rapide) et/ou -▮▭⊠- (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

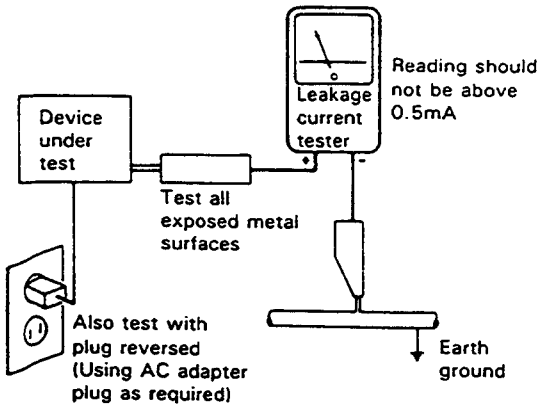
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

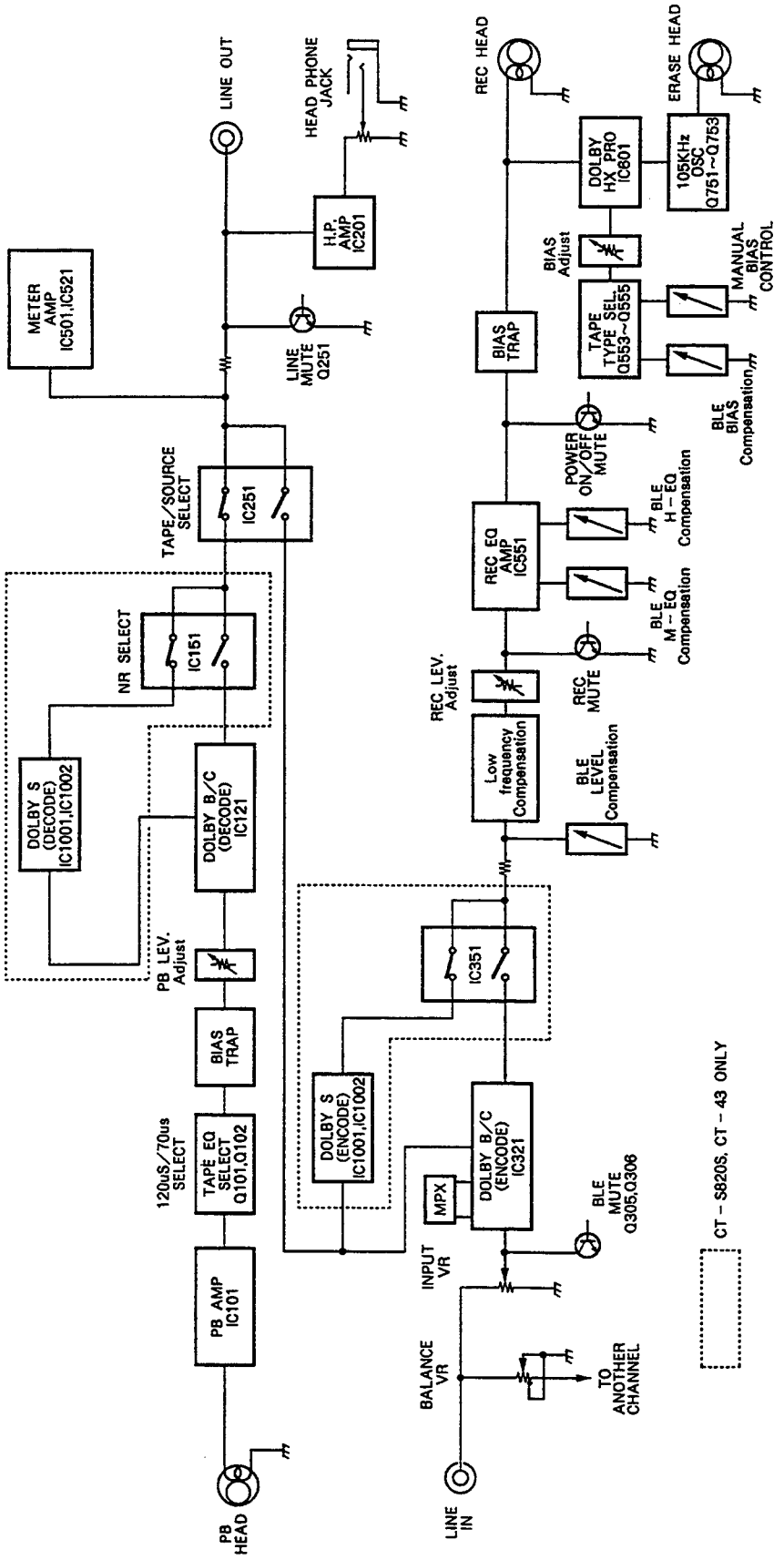
2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. BLOCK DIAGRAM



3. EXPLODED VIEWS, PACKING AND PARTS LIST

3.1 EXTERIOR

NOTES:

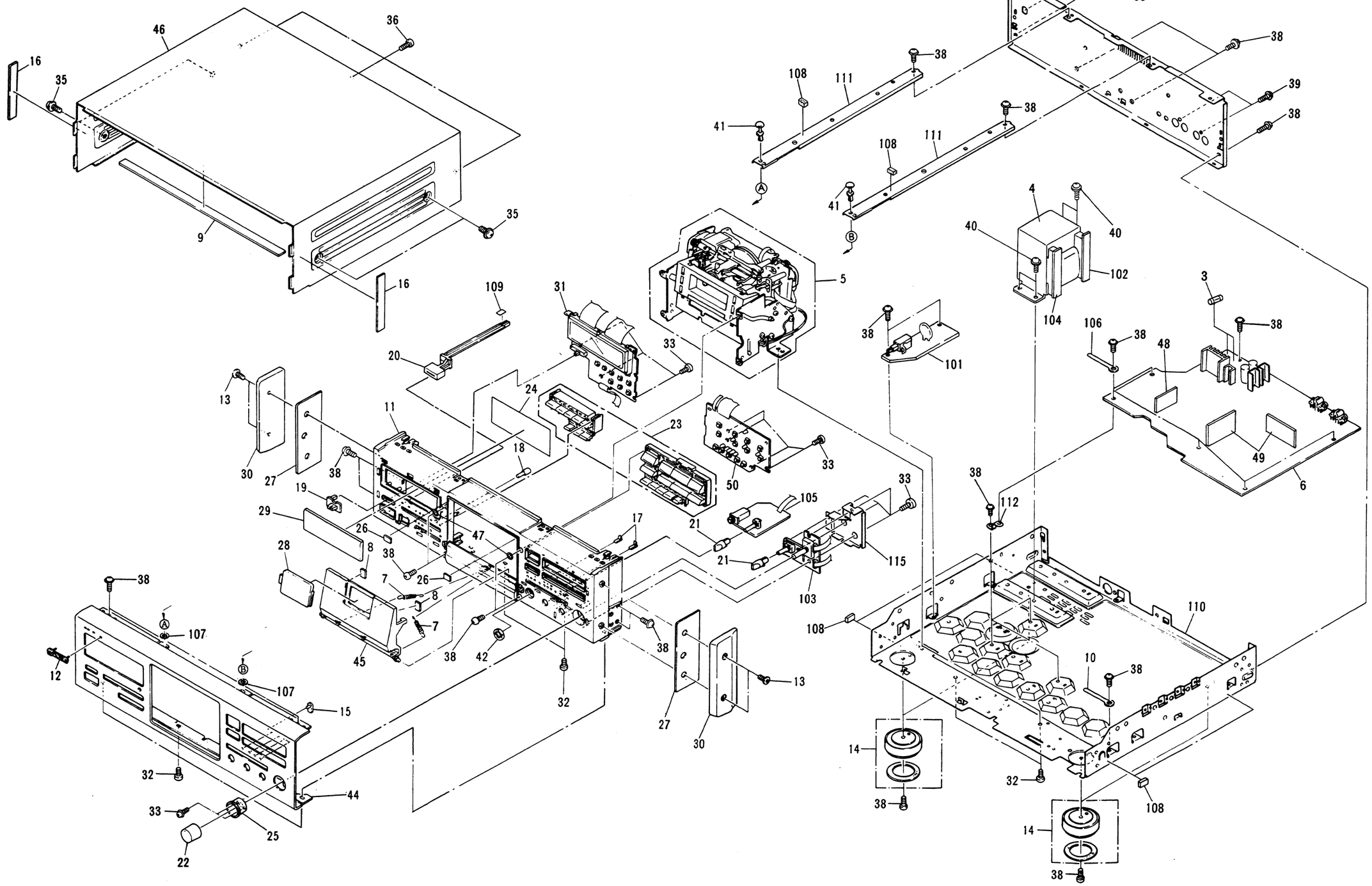
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List

Mark	No.	Description	Part No.
⚠	1	Strain relief	CM – 22C
⚠	2	AC power cord	PDG1015
⚠	3	FU811, FU812 Fuse (1.5A)	DEK1014
⚠	4	T1 power transformer	RTT1234
⊙	5	Mechanism unit	RYM1206
	6	MAIN unit	RWZ2964
	7	Door spring	RBH1306
	8	Cushion	REB1174
	9	Protector	RED1020
	10	Cord clamper	RNH – 184
	11	Panel stay	RNT1179
	12	Name plate	RAN1008
	13	Screw	ABA1148
	14	Foot assembly	AMR1159
	15	LED lens	AMR1160
	16	Side sheet (sponge)	PNM1150
	17	Lens S	PNW1893
	18	Counter reset knob	RAA1009
	19	Slide SW knob	RAC1562
	20	Power button	RAC1703
	21	Balance knob	RAC1705
	22	VR knob	RAC1707
	23	Function knob	RAC1817
	24	FL filter	RAH2087
	25	VR ring	RAT1011
	26	Door sheet (rubber)	REB1191
	27	Side spacer (rubber)	PEB1198
	28	Door lens	RAH1927
	29	FL lens	RAH2032
	30	Side panel	RAH2044
	31	FL unit	RWZ2920
	32	Screw	BBT30P100FZK
	33	Screw	BBZ26P080FZK
	34	.....	
	35	Screw	FBT40P080FZK
	36	Screw	IBZ30P060FCC
	37	.....	
	38	Screw	IBZ30P080FCC
	39	Screw	IBZ30P100FCC
	40	Screw	IBZ40P080FCC
	41	Rivet	RBM – 003
	42	Jack nut	RBN – 006
	43	.....	
	44	Front panel	RAH2283
	45	Door	RAH2277
	46	Bonnet	RXX1516
	47	Fiber washer	REC1180
⊙	48	HX unit	RWX1069
	49	DOLBY S unit	RWX1079
	50	OPSW unit	RWZ2921
NSP	101	PWSW unit	RWZ2965
NSP	102	TRN2 unit	RWZ2967
NSP	103	VR unit	RWZ2922
NSP	104	TRN 1 PCB	RNZ2456
NSP	105	HPHN unit	RWZ2918
NSP	106	Cord clamper	DNF1128
NSP	107	Washer	RBF1017
NSP	108	Rubber spacer (A)	REB1057
NSP	109	Acetate tape	REH1020
NSP	110	Main chassis	RNB1059
NSP	111	Center stay	RNC1071
NSP	112	PCB base	RNE1221
	113	.....	
NSP	114	Rear panel	RNA1722
NSP	115	VR shield plate	RNE1609

Exterior

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.



3.2 MECHANISM UNIT

Parts List

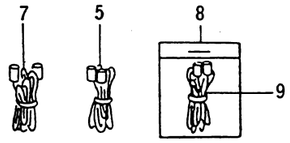
Mark	No.	Description	Part No.
	1	Rotary encoder	RSX1004
	2	Capstan motor assembly	RXX1491
	3	Reel motor assembly	REA1075
	4	Step screw	RBA – 064
	5	Cassette plate assembly	RXX1064
	6	Rubber cushion	REB1125
	7	Pinch spring	RBL – 028
	8	Pinch thrust spring	RBL – 030
	9	Sub – pinch spring	RBL – 098
	10	Capstan belt	REB1143
	11	Capstan belt (A)	REB – 509
	12	Tape guide	RNK1823
	13	Flywheel assembly	RXA1374
	14	Sub – flywheel assembly	RXA1375
	15	Metal holder assembly (A)	RXA1426
	16	Metal holder assembly (B)	RXA1343
	17	Pinch roller arm (R) assembly	RXB – 876
	18	Pinch roller arm (A) assembly	RXB – 877
	19	BT spring (A)	RBL – 031
	20	BT spring (B)	RBL – 032
	21	Idler pressure spring	RBL – 033
	22	Reel shaft cap (B)	RNK – 815
	23	BT disk assembly	RXB – 751
	24	Reel base assembly	RXB – 874
	25	Take – up idler assembly	RXA1554
	26	Washer	RBF – 065
	27	Head base spring	RBL – 037
	28	Brake spring	RBL – 038
	29	Drive belt	REB1182
	30	Brake shoe	REB – 511
	31	Brake	RNL – 723
	32	Cam gear	RNK1640
	33	Side cam gear	RNK1765
	34	Stabilizer	REB1161
	35	Eject spring	RBL – 039
	36	Half set arm spring	RBL – 040
	37	REC functioning spring	RBL – 041
	38	Detection functioning spring	RBL – 042
	39	Reel motor mounting plate	RNE1604
	40	Flywheel holder	RNH – 304
	41	Cord clamper	RNH – 184
	42	Washer	RBF – 057
	43	REC detector arm	RNL – 733
	44	Chrom detector arm	RNL – 734
	45	Metal detector arm	RNL – 735
	46	Thrust holder	RNL – 743
	47	Motor pulley	PNW1634
	48	Pressure arm (R)	RNL – 725
	49	Collar	RNL – 742
	50	Pressure arm (L)	RNL – 726

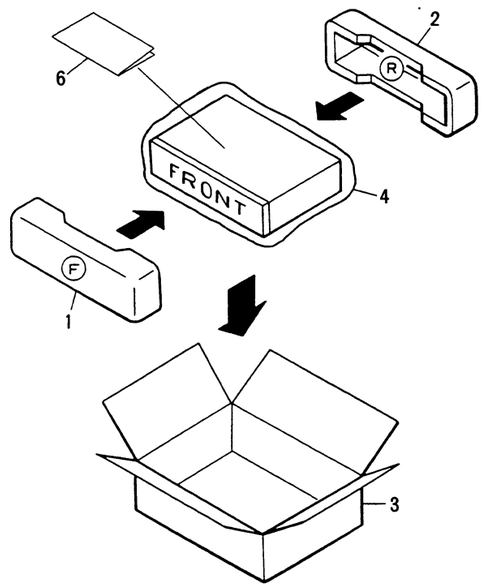
Mark	No.	Description	Part No.
	51	Head base set spring	RBL – 026
	52	Gear chassis assembly	RXA1171
	53	Screw	BBZ26P080FZK
	54	Pinch base assembly	RXB – 878
	55	Screw	BBZ30P080FZK
	56	Eject lever	RNK1763
	57	Screw	BCZ30P060FMC
	58	Screw	BMZ26P030FZK
	59	Screw	IBZ20P060FMC
	60	Screw	BMZ26P060FZK
	61	Screw	BMZ30P080FZK
	62	Screw	PMZ30P040FMC
	63	Screw	PMA26P050FZK
	64	Screw	PMA26P060FZK
	65	Screw	PMZ20P080FZK
	66	Washer	RBF – 030
	67	Stabilizer (B)	REB1038
	68	Earth spring	RBL – 059
	69	Washer	RBF – 076
	70	Washer	RBF1040
	71	Binder	REC – 371
	72	Steel ball (3mm)	REF – 022
	73	Steel ball (4mm)	REF – 023
	74	Screw	VCT30P060FZK
	75	LED (D3)	SLF – 401C
	76	Washer	WA21D040D013
	77	Washer	WA26N070W040
	78	Washer	WA32D080D050
	79	E ring	YE20FUC
	80	E ring	YE25FUC
	81	E ring	YE30FUC
	82	Snap ring	YS24FBT
	83	Shift shaft assembly	RXB – 885
	84	Head base assembly	RXX1333
	85	Mechanism chassis assembly	RXA1366
	86	Brake lever	RNK1638
	87	Second pulley assembly	RXA1350
	88	Door frame (L)	RNE1475
	89	Pinch lever assembly	RXA1360
	90	Door frame (R)	RNE1476
	91	Damper assembly	VXA1153
	92	Half pressure spring	RBK1004
	93	Door pocket	RNK1865
	94	Loading motor	VXM1034
	95	Screw	PBZ20P060FMC
	96	Capstan motor	RXM1054
	97	Reel motor	RXM1065
	98	2.5mm pitch side post (5P)	BS5P – SHF – 1
	99	Connector assembly (4P)	RKP1383
	100	Connector assembly (2P)	RKP1384

Mark	No.	Description	Part No.
NSP	101	Gear base assembly	RXB – 882
NSP	102	E head	RPB1042
NSP	103	R & P head	RPB1041
NSP	104	Connector unit	RWZ1751
NSP	105	Adjustment nut	RBA1047
NSP	106	Head adjustment spring C	RBL – 034
NSP	107	Hight spring	RBL – 036
NSP	108	Head base	RNK1645
NSP	109	Sub – head base	RNG – 335
NSP	110	E head base	RNG1033
NSP	111	Earth lead assembly	RDF – 001
NSP	112	REC switch unit	RWZ1749
NSP	113	Tape selector unit	RWZ1750
NSP	114	Sensor unit (B)	RWZ1753
NSP	115	Cassette plate	RAH1306
NSP	116	Lead wire holder	RNL – 793
NSP	117	Shift roller	RNL – 731
NSP	118	Sensor unit (A)	RWZ1752
NSP	119	Motor pulley	RNK1676
NSP	120	Reel motor pulley	RLA1186
NSP	121	Connector assembly (4P)	RKP1111
NSP	122	Connector assembly (2P)	RKP – 895
NSP	123	Spring	RBL – 047
NSP	124	Spring cup	RNL – 012
NSP	125	Idle pulley	RNL – 549
NSP	126	Idler arm	RNK1908

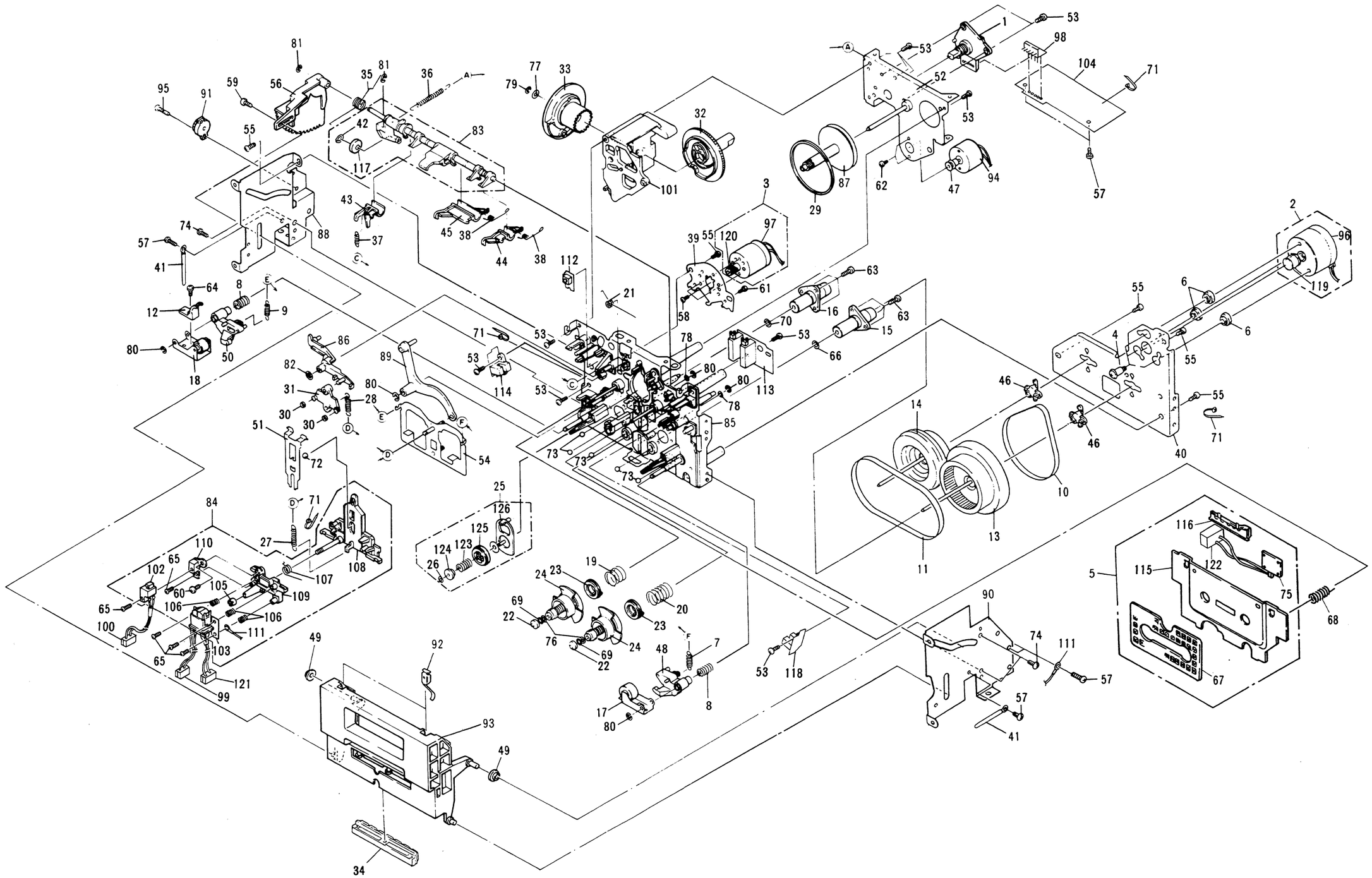
3.3 PACKING

Mark	No.	Description	Part No.
	1	Pad (F)	RHA1117
	2	Pad (R)	RHA1118
	3	Packing case	RHG1493
	4	Sheet	RHX1007
	5	Control cord (For CD • DECK SYNCHRO)	RDE1030
	6	Operating instructions (English/French)	RRE1078
	7	Connection cord (For SR cord)	PDE – 319
	8	Connection cord assembly	RDE1002
	9	Connection cord (For Audio)	RDE – 010





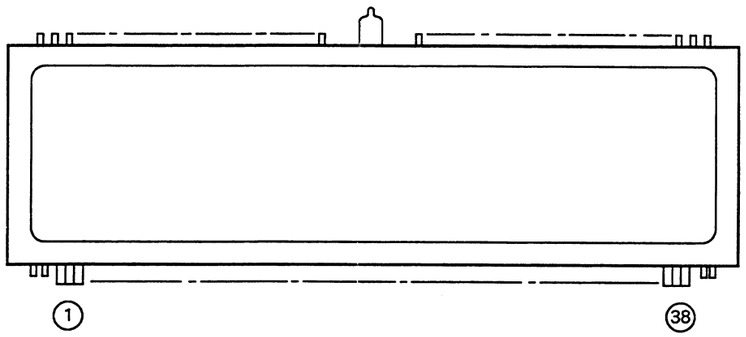
Mechanism unit



10

4. FL INFORMATION

RAW1127 (V1501)



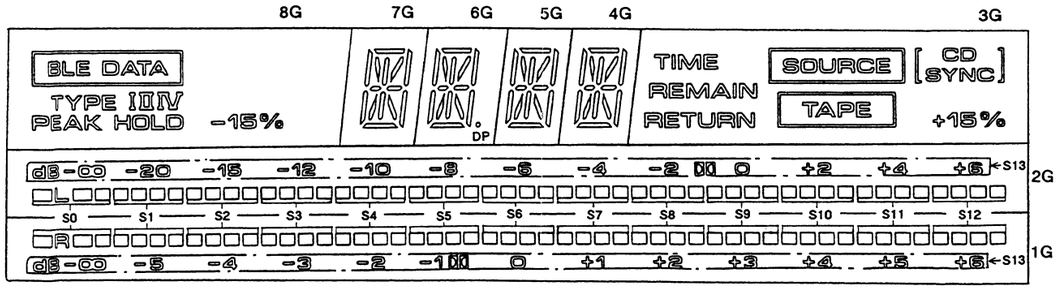
Pin Connection

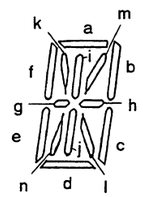
TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ELECTRODE	F1	F1	NP	NP	NC	8G	7G	6G	5G	4G	3G	2G	1G	P14	P13	P12	P11	P10	P9

TERMINAL NO.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ELECTRODE	P8	P7	P6	P5	P4	P3	P2	P1	P0	NP	NP	NP	NP	NP	NP	NP	NP	F2	F2

Notes F : Filament G : Grid P : Anode NP : No pin

Grid Assignment



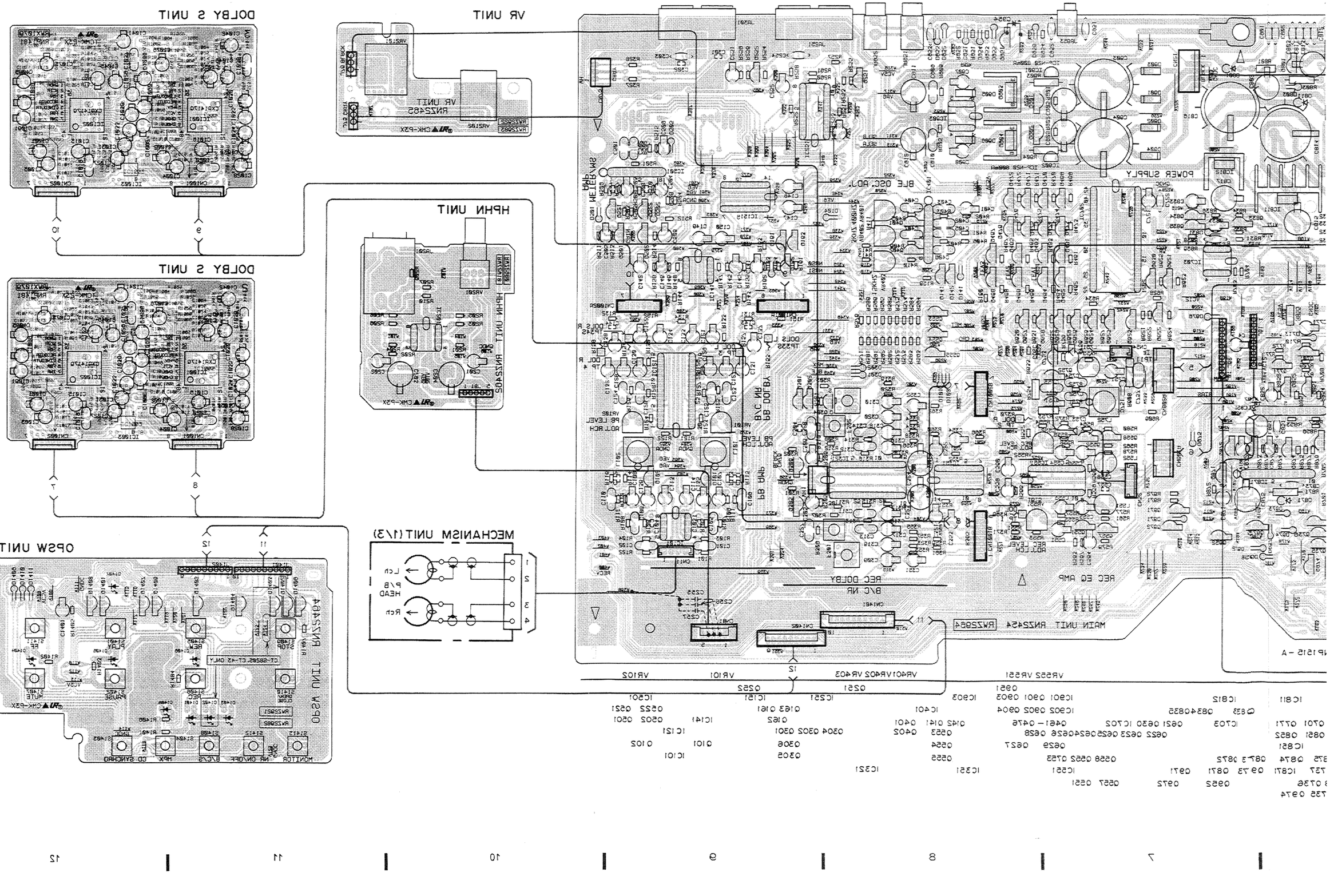


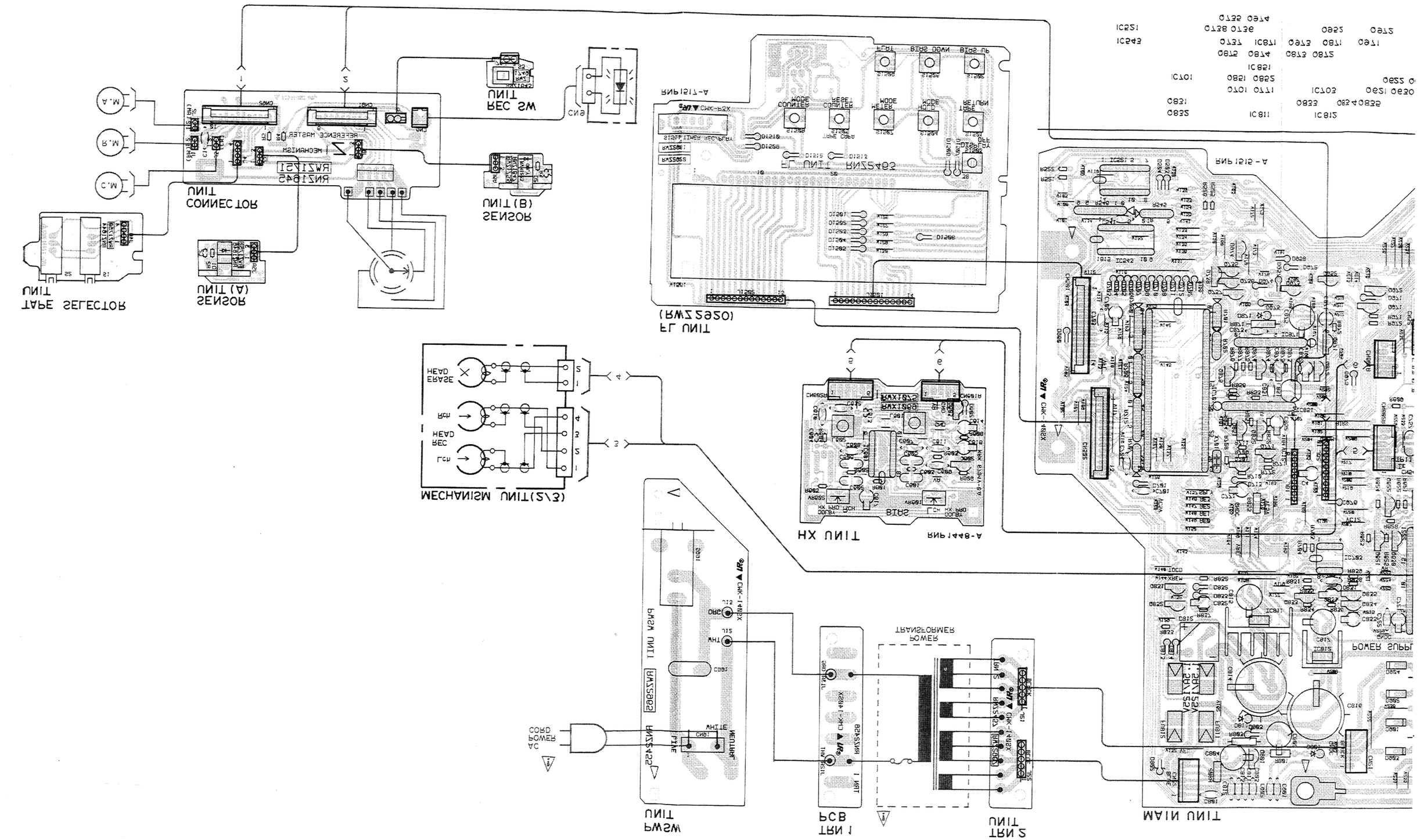
Anode Connection

	8G	7G	6G	5G	4G	3G	2G	1G
S0	–	a	a	a	a	TIME	S0	S0
S1	–	b	b	b	b	REMAIN	S1	S1
S2	–	c	c	c	c	RETURN	S2	S2
S3	–	d	d	d	d	TAPE	S3	S3
S4	–	e	e	e	e	SOURCE	S4	S4
S5	–	f	f	f	f	[CD SYNC]	S5	S5
S6	BLE DATA	g	g	g	g	+15%	S6	S6
S7	TYPE	h	h	h	h	–	S7	S7
S8	I	i	i	i	i	–	S8	S8
S9	II	j	j	j	j	–	S9	S9
S10	IV	k	k	k	k	–	S10	S10
S11	-15%	l	l	l	l	–	S11	S11
S12	HOLD	m	m	m	m	–	S12	S12
S13	PEAK	n	DP	n	n	–	S13	S13
S14	–	–	n	–	–	–	–	–

5. PCB CONNECTION DIAGRAM

● View from soldering side





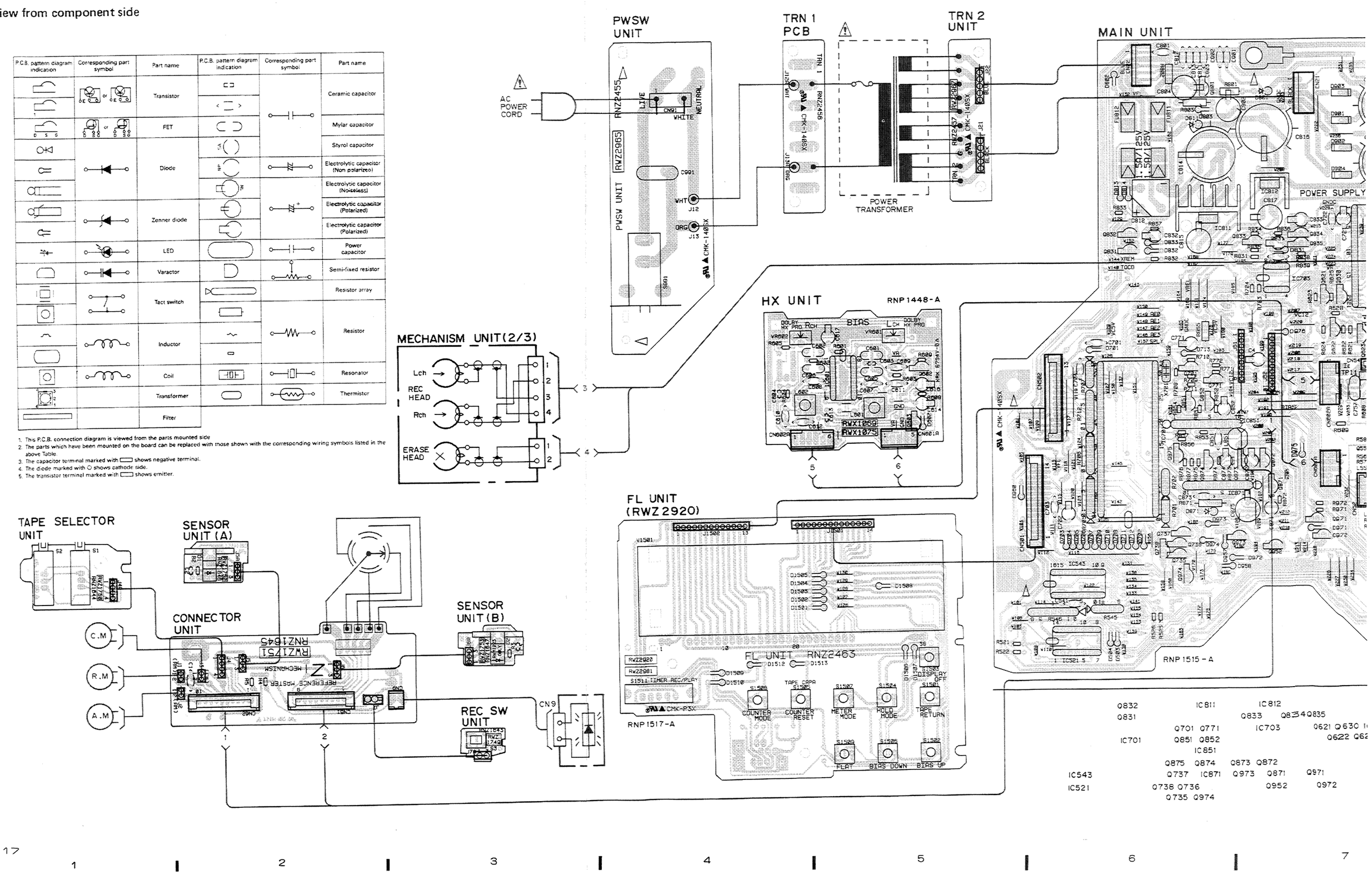
CT-A3, CT-S8502

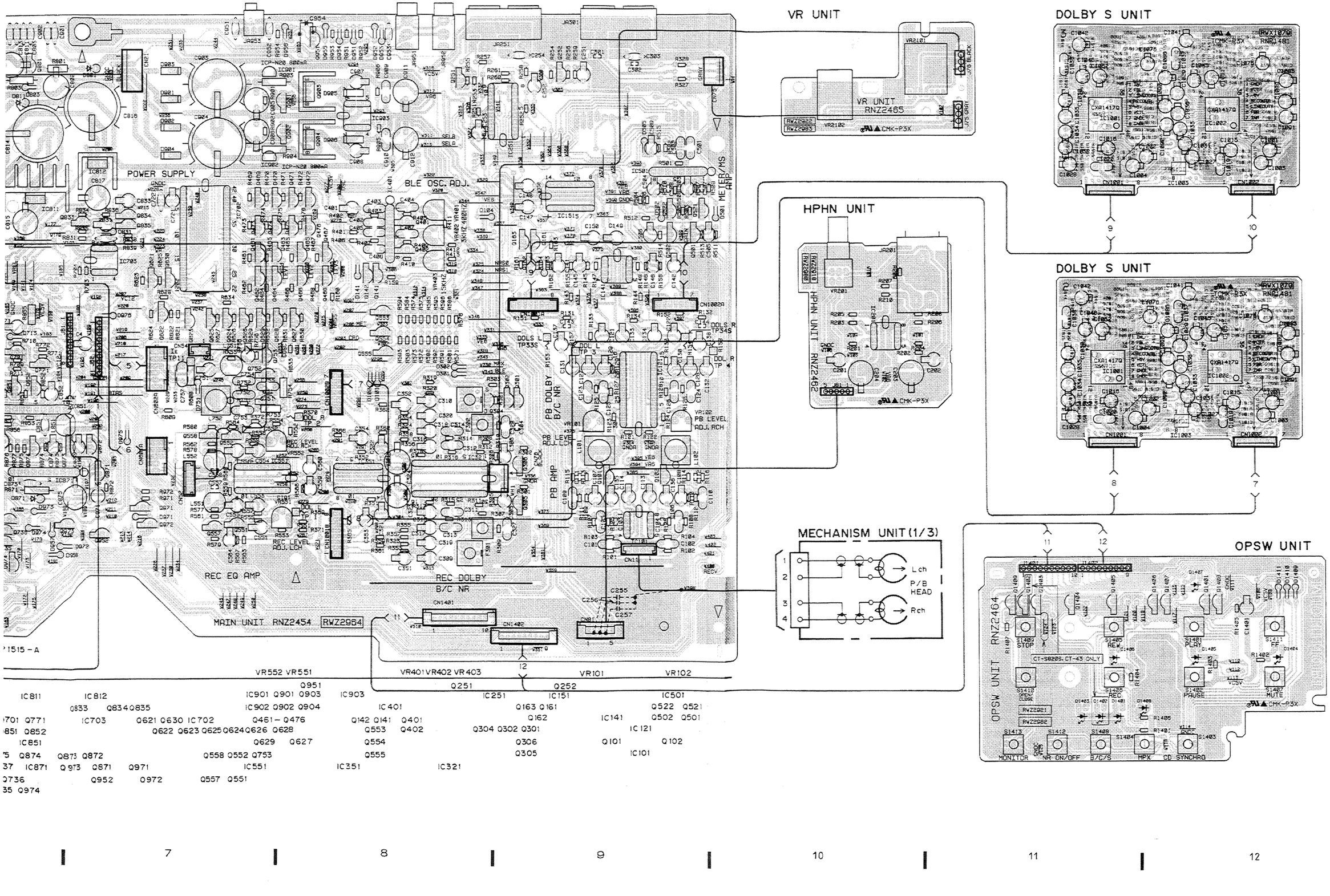
CT-43, CT-S820S

- View from component side

P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
					Mylar capacitor
		FET			Styrol capacitor
		Diode			Electrolytic capacitor (Non polarized)
					Electrolytic capacitor (Non-seless)
		Zenner diode			Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Tact switch			Resistor array
					Resistor
		Inductor			
		Coil			Resonator
		Transformer			Thermistor
		Filter			

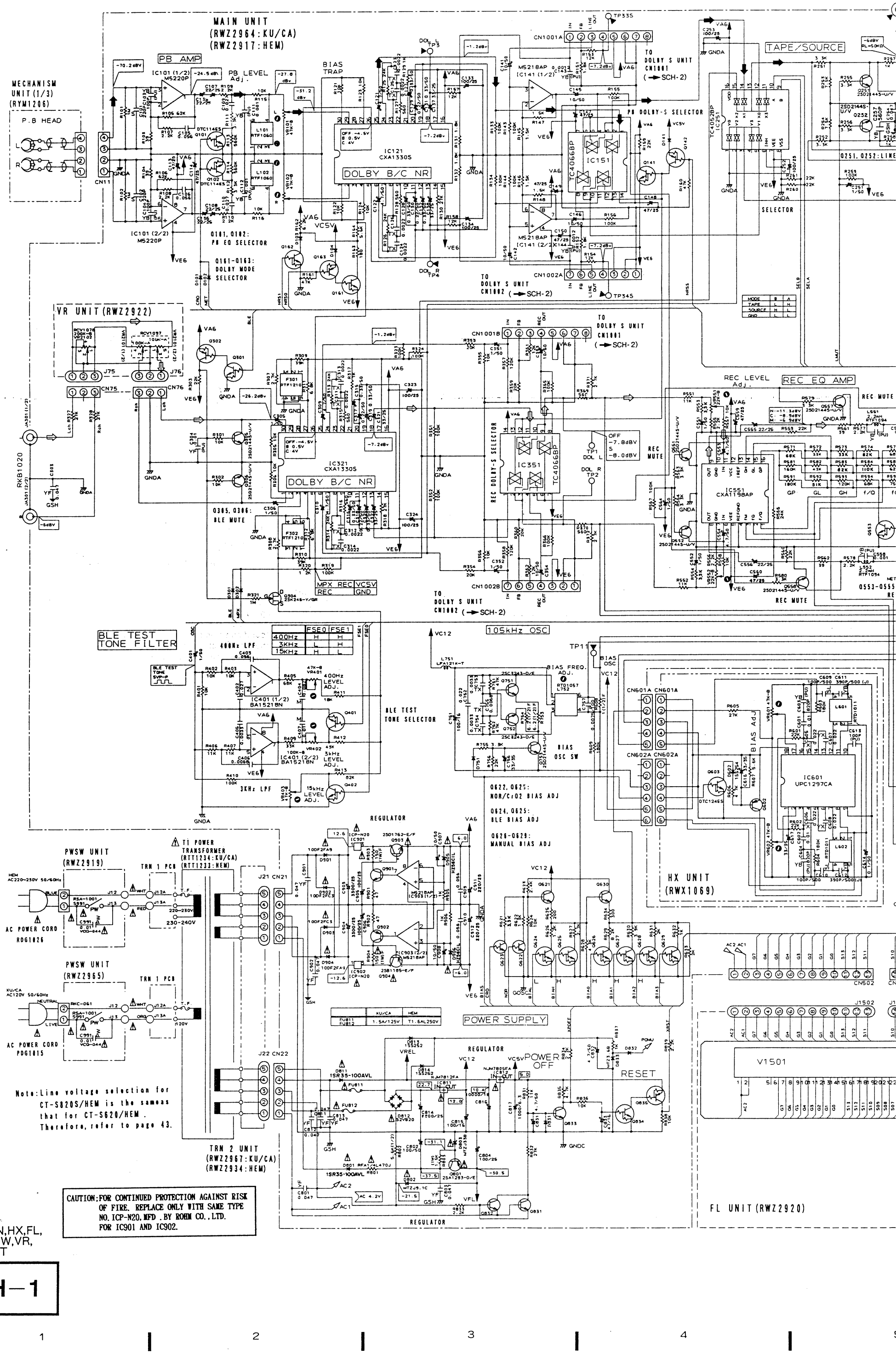
1. This P.C.B. connection diagram is viewed from the parts mounted side
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.




VR UNIT
VR UNIT RNZ2465
RWZ2922
RWZ2983
VR2101
VR2102
CMK-P3X
DOLBY S UNIT
RWX1079
RNC1481
CXA1417Q
IC1001
IC1002
IC1003
CN1001
CN1002
HPHN UNIT
HPHN UNIT RNZ2262
JR201
VR201
DOLBY S UNIT
MECHANISM UNIT(1/3)
Lch
P/B HEAD
Rch
OPSW UNIT
OPSW UNIT RNZ2464
CT-S820S, CT-43 ONLY
S1401 STOP
S1402 PLAY
S1403 FF
S1404 REW
S1405 REC
S1406 PAUSE
S1407 MUTE
S1408 OPEN/ CLOSE
S1409 B/C/S
S1410 NR ON/OFF
S1411 MONITOR
S1412 MPX
S1413 CD SYNCHRO
POWER SUPPLY
BLE OSC. ADJ.
REC EQ AMP
REC DOLBY B/C NR
PB DOLBY B/C NR
PB AMP
REC LEVEL ADJ. LCH
REC LEVEL ADJ. RCH
PB LEVEL ADJ. LCH
PB LEVEL ADJ. RCH
METER/MS AMP
MAIN UNIT RNZ2454 RWZ2964
CN1401
CN1402
CN1101
CN1102
CN1201
CN1202
VR552 VR551
VR401 VR402 VR403
VR101
VR102
Q951
Q251
Q252
IC811
IC812
IC901 Q901 Q903
IC903
IC902 Q902 Q904
IC401
IC251
IC151
IC501
Q163 Q161
Q162
Q522 Q521
Q502 Q501
IC141
IC121
IC101
Q833 Q834 Q835
IC703
Q621 Q630 IC702
Q461 – Q476
Q142 Q141 Q401
Q622 Q623 Q625 Q624 Q626 Q628
Q553 Q402
Q304 Q302 Q301
Q629 Q627
Q554
Q306
Q101 Q102
Q558 Q552 Q753
Q555
Q305
IC551
IC351
IC321
Q952
Q972
Q557 Q551

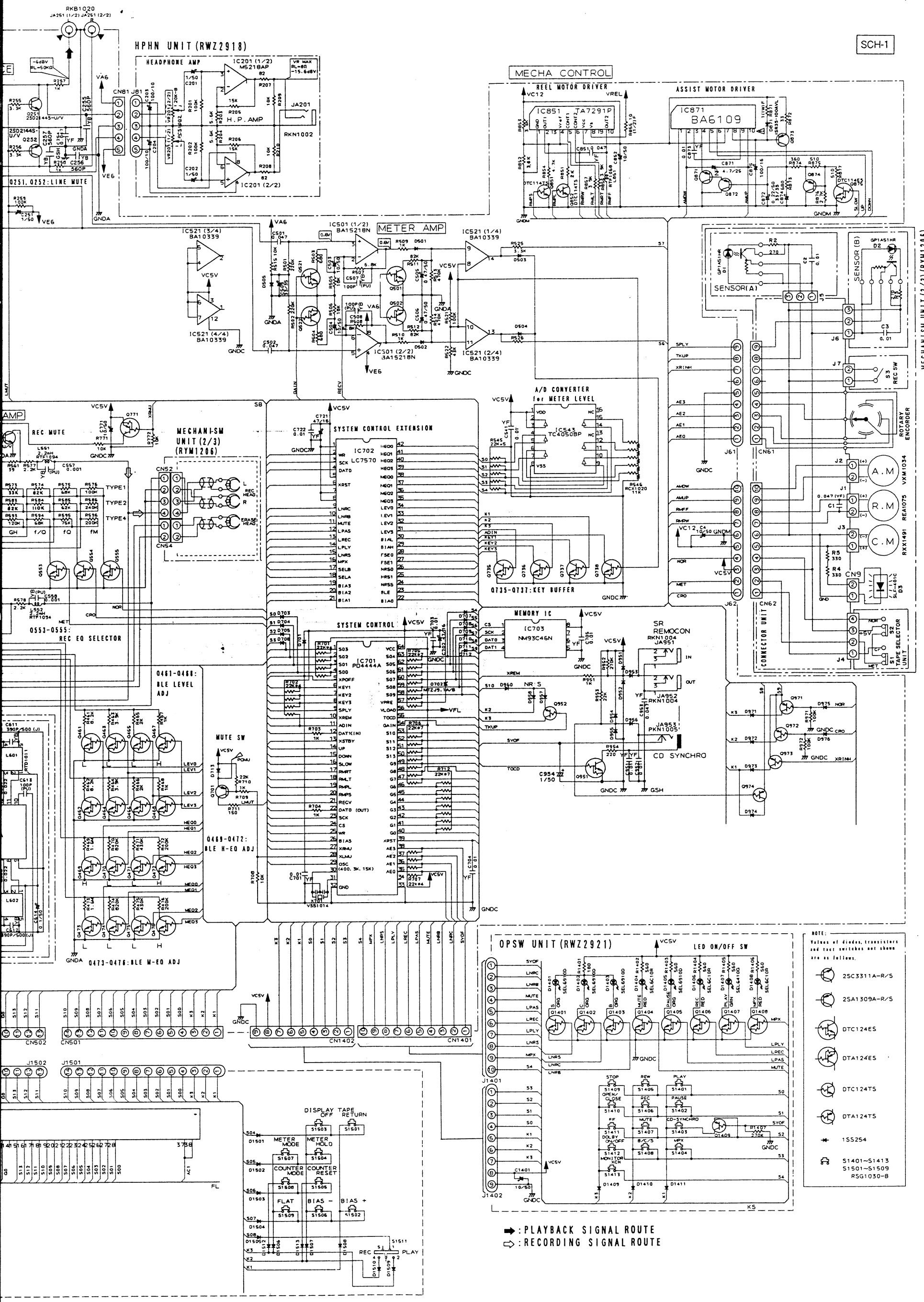
6. SCHEMATIC DIAGRAM

1. MAIN, HPHN, HX, FL, OPSW, PWSW, VR AND TRN 2 UNIT



MAIN, HPHN, HX, FL, OPSW, PWSW, VR, TRN 2 UNIT

SCH−1



IC121, IC321 (CXA1330S)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	16	6.0
2	0	17	0
3	0	18	0
4	0	19	−5.7
5	−6.0	20	−5.7
6	0	21	0
7	0	22	0
8	0	23	0
9	0	24	0
10	0	25	0
11	−5.7	26	0
12	−5.7	27	0
13	0	28	0
14	−4.9	29	0
15	−6.0	30	0

IC551 (CXA1198AP)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	1.3	9	0.7
2	1.3	10	0
3	1.3	11	0
4	0	12	6.0
5	−6.0	13	1.2
6	0	14	1.3
7	0	15	1.3
8	0.7	16	1.3

IC601 (UPC1297CA)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	4.4	10	1.7
2	0	11	0
3	4.4	12	0
4	0.6	13	0
5	0	14	0
6	0	15	0.6
7	0	16	4.4
8	0	17	0
9	0	18	12.0

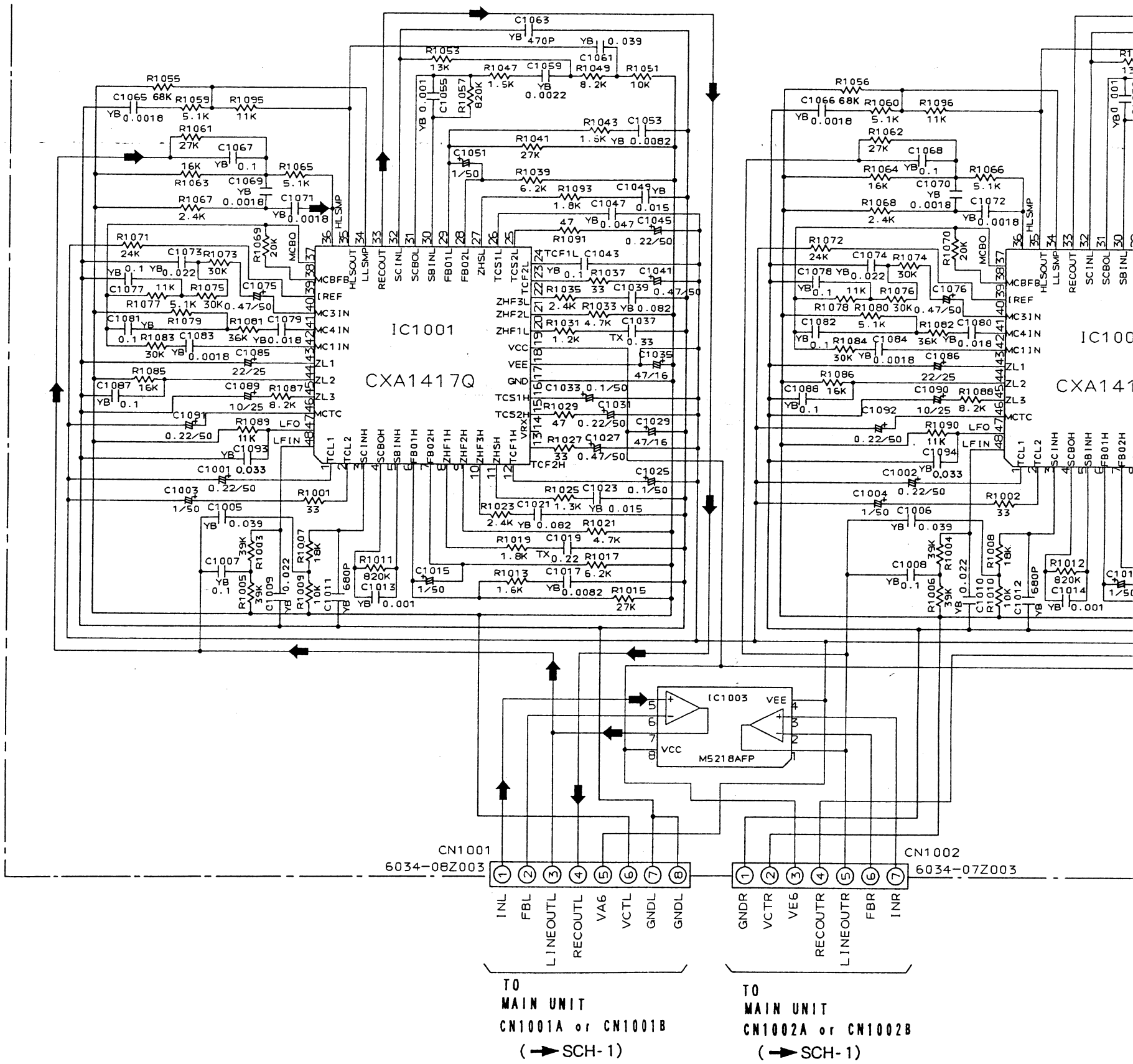
MAIN, HPHN, HX, FL, OPSW, PWSW, VR, TRN 2 UNIT

SCH−1

2. DOLBY S UNIT

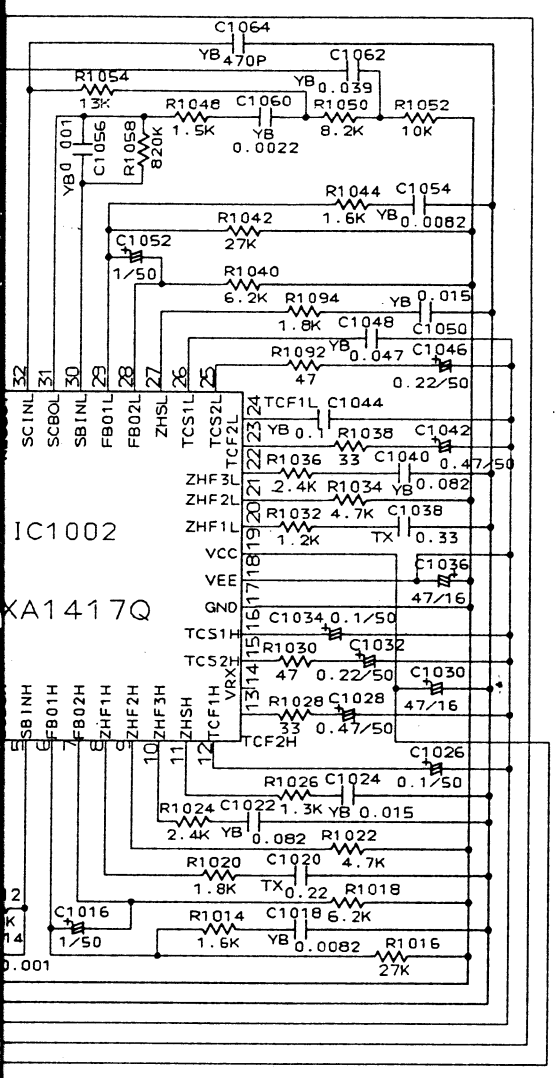
DOLBY S UNIT (RWX1079)

● CT-43 and CT-S820S each has two DOLBY S unit.



SCH—2 DOLBY S UNIT

unit.



IC1001, IC1002
(CXA1417Q)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	−4.6	17	0	33	0
2	−4.6	18	−6.0	34	0
3	0	19	6.0	35	0
4	0	20	0	36	0
5	0	21	0	37	0
6	0	22	0	38	0
7	0	23	−4.6	39	−4.8
8	0	24	−4.6	40	0
9	0	25	−4.6	41	0
10	0	26	−4.6	42	0
11	0	27	0	43	0
12	−4.6	28	0	44	0
13	−4.6	29	0	45	0
14	−3.4	30	0	46	−3.9
15	−4.6	31	0	47	0
16	−4.6	32	0	48	0

➡ : ENCODE SIGNAL ROUTE

SCH-2

Note: Type 6

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or µF unless otherwise noted.
   Ratings: capacitor (µF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or µH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ : DC voltage (V) in STOP mode unless otherwise noted.
   ⇦ mA or ← mA: DC current in STOP mode unless otherwise noted.
7. **OTHERS:**
   - ➡ : Signal route.
   - ⊘ : Adjusting point.
   - ▼ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SWITCHES** (Underline indicates switch position):

PWSW UNIT
S991 : POWER

OPSW UNIT
S1401 : ▶ (PLAY)
S1402 : ▮▮ (PAUSE)
S1403 : CD SYNC
S1404 : MPX FILTER
S1405 : ◀◀ (REV)
S1406 : • (REC)
S1407 : ○ (MUTE)
S1408 : DOLBY NR B/C/S
S1409 : ■ (STOP)
S1410 : ▲ (OPEN/CLOSE)
S1411 : ▶▶ (FF)
S1412 : DOLBY OFF/ON
S1413 : MONITOR

FL UNIT
S1501 : TAPE RETURN
S1502 : BIAS +
S1503 : DISPLAY OFF
S1504 : METER HOLD
S1505 : COUNTER RESET
S1506 : BIAS −
S1507 : METER MODE
S1508 : COUNTER MODE
S1509 : AUTO BLE

S1511 : TIMER (REC − OFF − PLAY)

9. **For SCH-☐ on the schematic diagram :**
   • SCH-☐ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

DOLBY S UNIT

SCH−2

7. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10^1 → 561 ····· RD1/8PM 5 6 1 J
47k Ω → 47 × 10^3 → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10^1 → 5621 ····· RN1/4PC 5 6 2 1 F

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
NSP		MOTHER UNIT	RWM1618
		├ MAIN UNIT	RWZ2964
⊙		│ ├ HX UNIT	RWX1069
		│ └ DOLBY S UNIT	RWX1079
NSP		├ PWSW UNIT	RWZ2965
NSP		├ TRN2 UNIT	RWZ2967
NSP		└ TRN1 PCB	RNZ2456
		(TRN1 UNIT for SD type)	
NSP		SUB UNIT	RWM1613
NSP		├ HPHN UNIT	RWZ2918
		├ FL UNIT	RWZ2920
		├ OPSW UNIT	RWZ2921
NSP		└ VR UNIT	RWZ2922
		JUNCTION CIRCUIT UNIT	RWM1615
NSP		├ REC SWITCH UNIT	RWZ1749
NSP		├ TAPE SELECTOR UNIT	RWZ1750
NSP		├ CONNECTOR UNIT	RWZ1751
NSP		├ SENSOR UNIT(A)	RWZ1752
NSP		└ SENSOR UNIT(B)	RWZ1753
MAIN UNIT			
SEMICONDUCTORS			
		IC521	BA10339
		IC401, IC501	BA15218N
		IC871	BA6109
		IC551	CXA1198AP
		IC121, IC321	CXA1330S
⚠		IC901, IC902	ICP-N20
		IC702	LC7570
		IC141, IC903	M5218AP
		IC101	M5220P
⚠		IC812	NJM7805FA
⚠		IC811	NJM7812FA
		IC703	NM93C46N
		IC701	PD4444A
		IC851	TA7291P
		IC543	TC4050BP
		IC251	TC4052BP
		IC151, IC351	TC4066BP
⚠		Q801	2SA1283
		Q701, Q871-Q874, Q902	2SA1309A
⚠		Q904	2SB1185
		Q751, Q752	2SC3243
		Q621, Q630, Q831-Q833, Q901	2SC3311A
⚠		Q903	2SD1762
		Q251, Q252, Q305, Q306, Q551, Q552, Q557, Q558, Q753	2SD2144S
		Q304	2SK246
		Q142, Q163, Q302, Q771, Q835	DTA124ES
		Q952, Q971-Q974	DTA124TS
		Q101, Q102, Q875	DTC114ES
		Q851, Q852	DTC114TS
		Q141, Q161, Q162, Q301, Q401, Q402, Q461-Q476, Q501, Q502, Q521, Q522, Q553-Q555, Q624-Q629, Q735-Q738, Q834, Q951	DTC124ES
		Q622, Q623	DTC124TS
⚠		D901-D904	10DF2FA9
⚠		D801, D811, D871	1SR35-100AVL
		D813, D814	1SS252
		D101-D104, D141, D301, D302, D501-D505, D701, D703-D713, D751, D831, D832, D951-D958, D960, D971-D976,	1SS254
		D833	MTZ3.6B
⚠		D803	MTZJ33B
⚠		D905, D906	HZS6(1L
		D702	MTZJ5.1A
⚠		D802	MTZJ5.1C
⚠		D812	S2VB20
COILS AND FILTERS			
		L751	LFA11K
		L752	RTD167
		L101, L102	RTF160
		L851(L=0.15mH)	RTF168
		L551, L552(L=222J)	RTF194
		F301, F302	RTF110

Mark	No.	Description	Part No.
CAPACITORS			
	C871		CEANP4R7M25
	C251, C401, C551, C552, C564, C954		CEAS010M50
	C4, C503, C504, C771, C852		CEAS100M50
	C751, C815, C875		CEAS101M16
	C804		CEAS101M25
	C802		CEAS101M50
	C817		CEAS102M6R3
	C509, C756, C874		CEAS330M35
	C702, C721, C833		CEAS470M16
	C831, C832		CEAS4R7M50
	C814		CEAS682M25
	C129, C130, C317, C318, C872		CEASR22M50
	C127, C128, C131, C132, C315, C316, C319, C320		CEASR33M50
	C133, C134, C252, C253, C323, C324, C905, C906		CENA101M25
	C505, C506		CEASR47M50
	C113, C114, C147-C150, C559, C560		CENA470M25
	C123-C126, C311-C314		CFTXA222J50
	C405, C753, C754		CFTXA332J50
	C406, C755		CFTXA682J50
	C752		CFTYA223J50
	C109, C110, C402		CFTYA273J50
	C501, C502		CFTYA473J50
	C105, C106, C403, C909, C910		CFTYA563J50
	C541, C701, C703-C705, C722, C873, C951, C952		CKCYF103Z50
	C254, C303, C801, C803, C811-C813, C851, C901, C902, C953		CKCYF473Z50
	C255-C257		CKDYB561K50
	C103, C104, C507, C508		CKPUYB101K50
	C111, C112, C557, C558		CKPUYB102K50
	C143, C144		CKPUYB122K50
	C304		CKPUYF103Z25
	C407		CQMA103J50
	C404		CQMA823J50
	C757		CQPA752J100
	C101, C102		CQSF221J50
	C305, C306, C351, C352 (1μ/50V)		RCH1079
	C141, C142, C145, C146, C353, C354, C907, C908 (10μ/50V)		RCH1080
	C107, C108, C135, C136, C555, C556 (22μ/25V)		RCH1081
	C137, C138, C321, C322 (33μ/25V)		RCH1083
	C121, C122, C309, C310, C553, C554 (4.7μ/50V)		RCH1090
	C903, C904 (3300μ/25V)		RCH1102
	C911, C912 (220μ/25V)		RCH1103
	C816 (10000μ/16V)		VCH1054
RESISTORS			
	R701, R702, R707 (22K)		RA4T223J
	R545 (22K)		RA5T223J
	R705, R706, R712 (22K)		RA7T223J
	R369, R370 (560Ω)		RCN1024
	R153, R154, R157, R158 (12K)		RCN1064
	R546 (11K/22K)		RCX1020
	R608		RD1/2LF010J
	R855		RD1/2LF100J
	R802		RD1/2LF562J
	R753, R754		RD1/2LF6R2J
	R257, R258		RDR1/4PM102J
	R327, R328		RDR1/4PM273J
⚠	R801 (47Ω)		RFA1/4L470J
	R871 (1Ω)		RS1LMF010J
⚠	R903, R904 (150Ω)		RS1LMF151J
	R803 (1.5K)		RS1LMF152J
	VR551, VR552 (22K)		RCP1046
	VR101, VR102, VR401, VR403 (47K)		RCP1047
	VR402 (100K)		RCP1048
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	JA953 MINI JACK		PKN1005
	JA251, JA301 PIN JACK		RKB1020
	JA951, JA952 REMOTE CONTROL JACK		RKN1004
	X701 CERAMIC RESONATOR (4.19MHz)		VSS1014

HX UNIT

SEMICONDUCTORS			
	IC601		UPC1297CA
	Q602		2SA1309A
	Q603		DTC124ES
	D602		1SS254
COILS			
	L601, L602 (L=4.6mH, Q=75, F=105KHz)		RTD1011
CAPACITORS			
	C609, C610		CCCSL101K500
	C616, C617		CEAS330M35
	C614		CEASR10M50
	C601, C602		CFTXA103J50
	C605, C606		CFTXA223J50
	C607, C608		CGCYX223K25
	C613		CKPUYB101K50
	C603, C604		CKPUYB821K50
	C611, C612 (C=390P, V(DC)=500)		RCG1004
RESISTORS			
	VR601, VR602		VRTB6HS473
	OTHER RESISTORS		RD1/6PM□□□J

DOLBY S UNIT

SEMICONDUCTORS			
	IC1001, IC1002		CXA1417Q
	IC1003		M5218AFP
CAPACITORS			
	C1003, C1004, C1015, C1016, C1051, C1052		CEJA010M50
	C1033, C1034		CEJAR10M50
	C1001, C1002, C1031, C1032, C1045, C1046, C1091, C1092		CEJAR22M50

Mark	No.	Description	Part No.
	C1027, C1028, C1041, C1042, C1075, C1076		CEJAR47M50
	C1019, C1020		CFTYA224J50
	C1037, C1038		CFTYA334J50
	C1013, C1014, C1055, C1056		CKSQYB102K50
	C1007, C1008, C1025, C1026, C1043, C1044, C1067, C1068, C1077, C1078, C1081, C1082, C1087, C1088		CKSQYB104K25
	C1023, C1024, C1049, C1050		CKSQYB153K50
	C1065, C1066, C1069-C1072, C1083, C1084		CKSQYB182K50
	C1093, C1094		CKSQYB333K50
	C1079, C1080		CKSQYB183K50
	C1059, C1060		CKSQYB222K50
	C1009, C1010, C1073, C1074		CKSQYB223K50
	C1093, C1094		CKSQYB333K50
	C1005, C1006, C1061, C1062		CKSQYB393K50
	C1063, C1064		CKSQYB471K50
	C1047, C1048		CKSQYB473K50
	C1011, C1012		CKSQYB681K50
	C1017, C1018, C1053, C1054		CKSQYB822K50
	C1021, C1022, C1039, C1040		CKSQYB823K25
	C1089, C1090 (10 μ/25V)		RCH1093
	C1085, C1086 (22 μ/25V)		RCH1094
	C1029, C1030, C1035, C1036 (47 μ/16V)		RCH1095
RESISTORS			
	OTHER RESISTORS		RD1/10S□□□J
OTHERS			
	CN1002		6034B-07Z001
	CN1001		6034B-08Z001

PWSW UNIT

SWITCHES			
⚠	S991		RSA1001
CAPACITORS			
⚠	C991 (0.01 μF/400V)		VCG-044
OTHERS			
⚠	TERMINAL		RKC-061

TRN2 UNIT

TRN2 unit has no service part.

TRN1 PCB

TRN1 PCB has no service part.

HPHN UNIT

SEMICONDUCTORS			
	IC201		M5218AP
CAPACITORS			
	C201, C202		CEAS010M50
	C203, C204		CEAS101M10

Mark	No.	Description	Part No.
RESISTORS			
	VR201 (20KB)		PCS1002
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	JA201 HEADPHONE JACK		RKN1002

FL UNIT

SEMICONDUCTORS			
	D1501-D1510, D1512, D1513		1SS254
SWITCHES			
	S1501-S1509		RSG1030
	S1511		RSH1011
OTHERS			
	V1501 FL INDICATOR TUBE		RAW1127

OPSW UNIT

SEMICONDUCTORS			
	Q1409		DTA124TS
	Q1401-Q1408		DTC124ES
	D1409-D1411		1SS254
	D1407		SEL6410G
	D1401-D1403, D1405		SEL6910D
	D1404, D1406, D1408		SEL6C10R
SWITCHES			
	S1401-S1413		RSG1030
CAPACITORS			
	C1401		CEJA100M16
RESISTORS			
	ALL RESISTORS		RD1/6PM□□□J

VR UNIT

RESISTORS			
	VR2102		RCV1078
	VR2101 (100KA)		RCV1097

REC SWITCH UNIT

SWITCHES			
	S3		RSG-113

TAPE SELECTOR UNIT

SWITCHES			
	S1, S2		RSH-070

CONNECTOR UNIT

CAPACITORS			
	C1		CKCYB473Z50
RESISTORS			
	ALL RESISTORS		RD1/6PM□□□J

Mark	No.	Description	Part No.

SENSOR UNIT (A)

SEMICONDUCTORS

	D1	GP1A51HR

CAPACITORS

	C2	CKPUYY103N16

RESISTORS

	ALL RESISTORS	RD1/6PM□□□J

SENSOR UNIT (B)

SEMICONDUCTORS

	D2	GP1A51HR

CAPACITORS

	C3	CKPUYY103N16

RESISTORS

	ALL RESISTORS	RD1/6PM□□□J

8. ADJUSTMENTS

8.1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment			
Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD–301 tape (3kHz)	Tape speed adjustment hole	3015Hz ± 5Hz

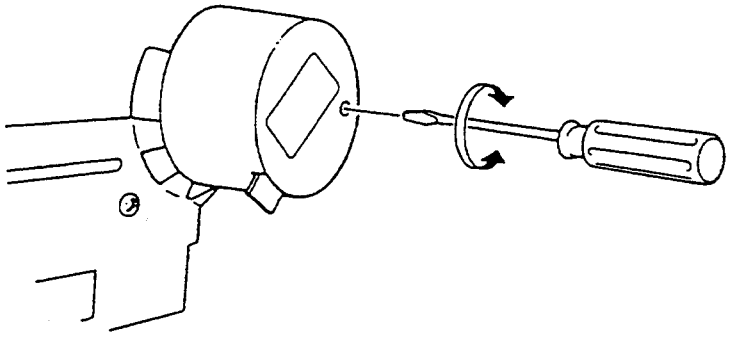


Fig. 8–1 Tape speed adjustment

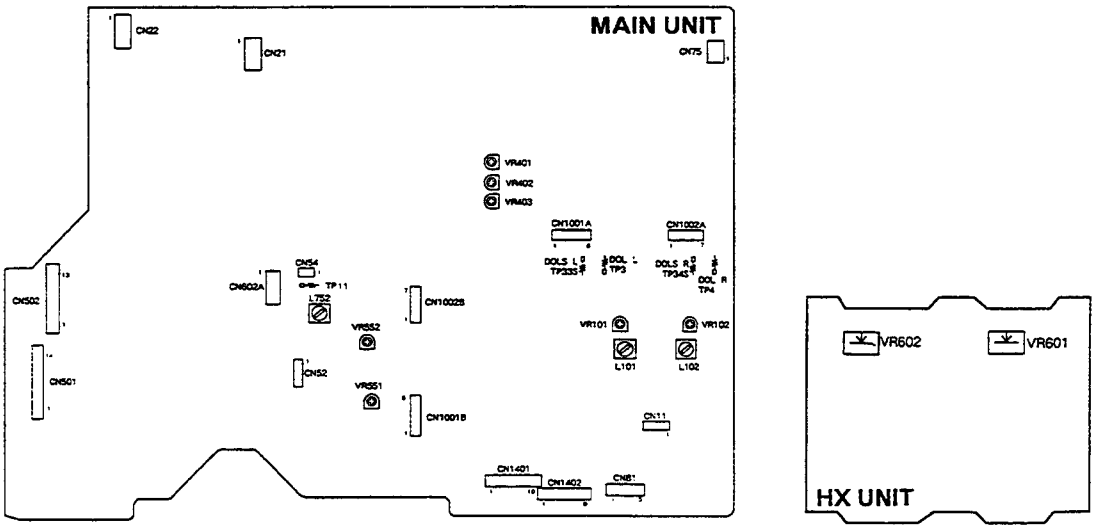


Fig. 8–2 Adjusting points

8.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBV=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD–331E : Playback adjustments (See Fig. 8–3)
STD–631 : NORMAL blank tape
STD–621 : CrO_2 blank tape
STD–610 : METAL blank tape

* As the reference recording level is 250 nwb/m for STD–331E, the recording level will be higher by 4 dB for STD–331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment.
2. Bias trap adjustment.
3. Recording bias adjustment.
4. Recording level adjustment.
5. AUTO BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
"DOLBY",the double-D symbol ⊡⊡ and "HX PRO"are trademarks of Dolby Laboratories Licensing Corporation.

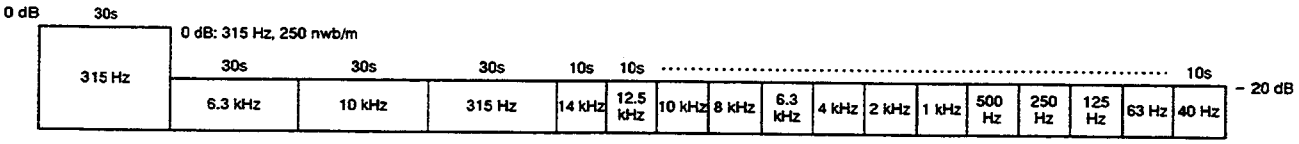


Fig. 8–3 Constants of the test tape STD–331E

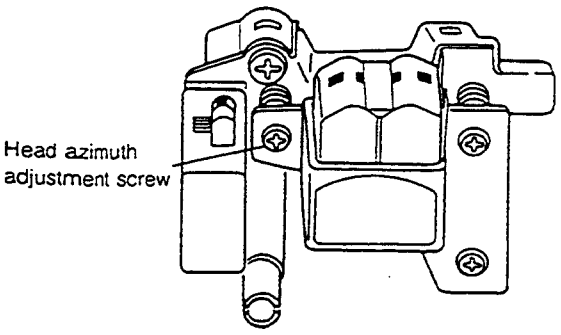


Fig. 8–4 Head azimuth adjustment

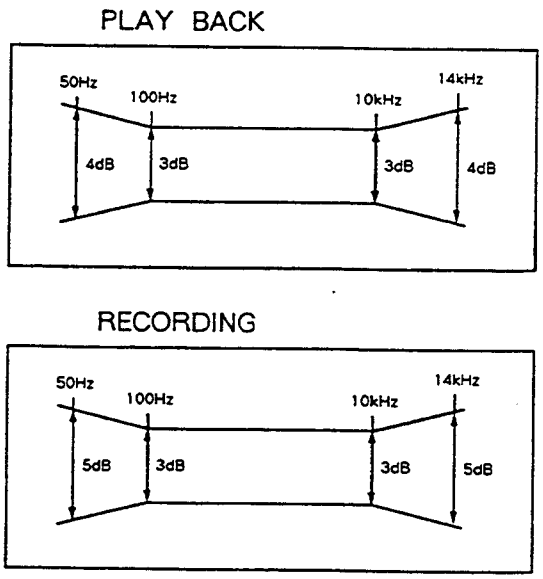


Fig. 8–5 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR101, 102 to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331E test tape.	Head azimuth adjustment screw. (See Fig. 8–4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

Note: The left and right phase difference for the 12.5 kHz tone should be within 75 degrees. (That for the 10 kHz tone should be within 60 degrees.)

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331E test tape.	Deck	VR101 (Lch) VR102 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	– 7.2 dBV	
2.	Set the DOLBY NR switch to the S position.						
3.	PLAY	Play the 315 Hz/0 dB section of the STD–331E test tape.			TP. 33S (Lch) TP. 34S (Rch)	–7.2 dBV ± 0.5 dB	

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PLAY	Load the STD–610 test tape with no input signal.	Deck	L752	TP. 11	105 kHz ± 300 Hz	

2. Bias Trap Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PLAY	Load the STD–610 test tape with no input signal.	Deck	L101 (Lch) L102 (Rch)	LINE OUT	Minimum output	

3. Recording Bias Adjustment

- After the adjustment, Caution should be exercised so as not to become under bias by checking the distortion rate.
- Set the DOLBY NR switch to the OFF position.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PLAY	Record the 315 Hz and 10kHz signals at – 26 dBV input level onto the STD – 631 test tape, and Playback.	NOR.	VR601 (Lch) VR602 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 10 kHz signal becomes 0 dB ± 0.5dB when compared with the 315Hz signal.	

4. Recording Level Adjustment

- Set the DOLBY NR switch to the OFF position.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/ – 4 dBV signal to the line input terminals, load the STD–631 test tape.	REC level control volume		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV	
2.	REC/ PLAY	Record the above signal onto the STD – 631 test tape, and playback.	Deck	VR551 (Lch) VR552 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes –11.2 dB.	
3.	REC/ PLAY	Record the above signal onto the STD – 621 test tape, and playback.	Check			–11.2 dBV ± 1 dB	
4.	REC/ PLAY	Record the above signal onto the STD – 610 test tape, and playback.	Check			–11.2 dBV ± 1 dB	
5.	STOP	Set the DOLBY NR switch to the S position.					
6.	REC/ PLAY	Record the above signal onto the STD – 631 test tape, and playback.	Check		LINE OUT	0 dB ± 1.0 dB for paragraph 2.(* 1)	

* 1: If this confirmation value cannot be obtained, perform "Playback Level Adjustment" once again.

5. AUTO BLE Adjustment

- BLE Adjustment must be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the test mode
  Press the COUNTER MODE, COUNTER RESET and PAUSE keys on the front panel simultaneously, with the power ON. The unit enters the test mode and oscillates a 400 Hz signal.
  Thereafter, each time the AUTO BLE key is pressed, the oscillation frequency changes as follows: 3 kHz oscillation → 15 kHz oscillation → 400Hz oscillation

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	–	Set to test mode	–	–		
2.		Press the AUTO BLE key on the front panel.	VR401	Level meter Lch	Adjust the Lch segment which is lit until Rch is not lighting up. Lch ■→□ Rch ■■□■■ (■: light up □: not light up)	400 Hz adjustment (FL indication 1)
3.		Press the AUTO BLE key on the front panel.	VR402			3 kHz adjustment (FL indication 2)
4.		Press the AUTO BLE key on the front panel.	VR403			15 kHz adjustment (FL indication 3)
5.	When the COUNTER RESET key is pressed again, the test mode is released.					

9. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

1. PD4444A (IC701)

• System control

Pin functions

Pin No.	Name	Function
1	S3	Pins 1 to 4 are the FL scan segment output, key scan output and level scan output.
2	S2	
3	S1	
4	S0	
5	$\overline{\text{POFF}}$	Power off pulse input. Power off processing starts when "H" becomes "L".
6	$\overline{\text{KEY1}}$	Pins 6 to 8 are key scan data inputs.
7	$\overline{\text{KEY2}}$	
8	$\overline{\text{KEY3}}$	
9	SPLY	Supply side sensing pulse input.
10	$\overline{\text{REMOTE}}$	Remote control pulse input.
11	ADIN	Level detection signal input. (Lch, Rch, FLEX level detection signals)
12	DAT1(IN)	Communication data input from the external memory (NM93C46N).
13	$\overline{\text{STBY}}$	When the power is turned off by the SR signal, outputs "L" and sets into the standby mode.
14	AM UP	Assist motor control output. Outputs "H" when stopping.
15	AM DOWN	Assist motor control output. Outputs "H" when stopping.
16	AM SLOW	Assist motor control output. Outputs "H" when stopping.
17	RM RT	Reel motor control output. Outputs "H" when stopping.
18	RM LT	Reel motor control output. Outputs "H" when stopping.
19	RM PL	Reel motor play torque output. Outputs "H" during play.
20	RM PS	Reel motor play torque output. Outputs "H" at the beginning of tape rewinding during play.
21	RECV	Switches the meter circuit output recovery time. Increases the speed of the recovery time at "H".
22	DAT0(OUT)	Communication data output with the external memory (NM93C46) and output expansion IC (LC7570).
23	SCK	Communication clock output with the external memory and output expansion IC.
24	CS	Chip select output. Outputs "H" when communicating with the external memory.
25	WR	Outputs "H" when communicating with the output expansion IC.
26	BIAS	Bias current and erasure current control output. ON at "H".
27	$\overline{\text{REC MUTE}}$	Recording amplifier mute control output. Mute turns on at "L".
28	$\overline{\text{LINE MUTE}}$	Line mute control output. Mute turns on at "L".
29	BLE OSC	Square wave output for AUTO BLE. Outputs the 400/3K/10K/15 kHz square wave.
30	OSC1	Operation clock input.
31	OSC2	Operation clock input.
32	GND	Connected to GNDC.

Pin No.	Name	Function
33	GND	Connected to GNDC.
34	–	N.C.
35	AE0	Pins 35 to 38 are encoder inputs for detecting the position of the mechanism assist.
36	AE1	
37	AE2	
38	AE3	
39	$\overline{\text{RESET}}$	Reset input. Resets at "L". (When the power is on and off)
40	G0	Pins 40 to 49 are outputs for the FL scan grid.
41	G1	
42	G2	
43	G3	
44	G4	
45	G5	
46	G6	
47	G7	
48	G8	
49	G9	
50	S13	Pins 50 to 53 are FL scan segment output pins.
51	S12	
52	S11	
53	S10	
54	M. GAIN	Meter amplifier gain switching output. When MS, outputs "H".
55	TOCD	CD synchronization output. Outputs "H" during CD synchronization.
56	V_{LOAD}	Connected to V_{FL} (Approx. – 30V).
57	V_{PRE}	Connected to approx. – 5V.
58	S9	Pins 58 to 62 are FL scan segment outputs and key scan outputs.
59	S8	
60	S7	
61	S6	
62	S5	
63	S4	FL scan segment output, key scan output, and level scan output.
64	VC5V	Power supply terminal. Connected to +5V.

10. FOR CT-S820S/HEM, CT-S620/HEM, HB, SD, AND CT-S620-G/HEM

CONTRAST OF MISCELLANEOUS PARTS

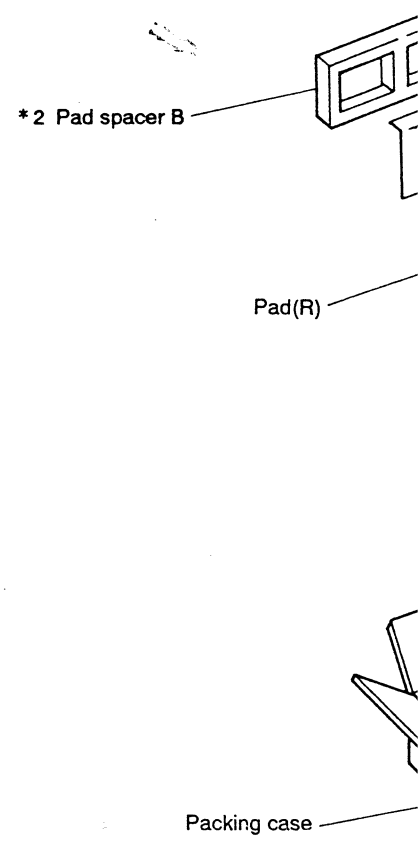
NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

CT-S820S/HEM, CT-S620/HEM, HB, SD, CT-S620-G/HEM and CT-43/KU/CA have the same construction except for the following:

Mark	Symbol & Description	Part No. CT-43/KU/CA	CT-S820S/HEM	CT-S620/HEM	CT-S620/HB	CT-S620/SD	CT-S620-G/HEM	Remarks
NSP	MOTHER unit	RWM1618	RWM1610	RWM1619	RWM1620	RWM1621	RWM1619	
	MAIN unit	RWZ2964	RWZ2917	RWZ2968	RWZ2972	RWZ2976	RWZ2968	
NSP	PWSW unit	RWZ2965	RWZ2919	RWZ2969	RWZ2973	RWZ2977	RWZ2969	
NSP	TRN1 PCB *	RNZ2456	RNZ2452	RNZ2460	RNZ2460	.....	RNZ2460	
NSP	TRN1 unit *	.....	.....	.....	.....	RWZ2978	.....	
NSP	TRN2 unit	RWZ2967	RWZ2934	RWZ2971	RWZ2975	RWZ2979	RWZ2971	
NSP	SUB unit	RWM1613	RWM1613	RWM1622	RWM1622	RWM1622	RWM1622	
NSP	HPHN unit	RWZ2918	RWZ2918	RWZ2980	RWZ2980	RWZ2980	RWZ2980	
	FL unit	RWZ2920	RWZ2920	RWZ2981	RWZ2981	RWZ2981	RWZ2981	
	OPSW unit	RWZ2921	RWZ2921	RWZ2982	RWZ2982	RWZ2982	RWZ2982	
NSP	VR unit	RWZ2922	RWZ2922	RWZ2983	RWZ2983	RWZ2983	RWZ2983	
	DOLBY S unit	RWX1079	RWX1079	.....	.....	.....	.....	
⚠	T1 Power transformer (AC120V)	RTT1234	.....	.....	.....	.....	.....	
⚠	T1 Power transformer (AC220 – 230/230 – 240V)	.....	RTT1233	RTT1233	RTT1233	.....	RTT1233	
⚠	T1 Power transformer (AC110/120 – 127/220/240V)	.....	.....	.....	.....	RTT1235	.....	
⚠	AC power cord	PDG1015	RDG1026	RDG1026	RDG1024	RDG1027	RDG1026	
⚠	Strain relief	CM – 22C	CM – 22B	CM – 22B	CM – 22B	CM – 22B	CM – 22B	
⚠	Fuse FU811, FU812 (1.5A/125V)	DEK1014	.....	.....	.....	.....	.....	
⚠	Fuse FU811, FU812(T1.6AL, 250V)	.....	REK – 102	REK – 102	REK – 102	REK – 102	REK – 102	
⚠	Line voltage selector (AC110/120 – 127/220/240V)	.....	.....	.....	.....	PSB1002	.....	
	Foot assembly	AMR1159	.....	.....	.....	.....	.....	
	Insulator	.....	PNW1912	PNW1912	PNW1912	PNW1912	PNW1912	For foot
	Side panel	RAH2044	.....	.....	.....	.....	.....	
	Side sheet	PNM1150	.....	.....	.....	.....	.....	
	Side spacer (Rubber)	REB1198	.....	.....	.....	.....	.....	
	Front panel	RAH2283	RAH2269	RAH2284	RAH2284	RAH2284	RAH2285	
	Door	RAH2277	RAH2270	RAH2278	RAH2278	RAH2278	RAH2279	
	FL filter	RAH2087	RAH1936	RAH1936	RAH1936	RAH2087	RAH1936	
	Name plate	RAN1008	VAM1032	VAM1032	VAM1032	VAM1032	RAN1011	
	Function knob	RAC1817	RAC1817	RAC1821	RAC1821	RAC1821	RAC1822	
NSP	Rear panel	RNA1722	RNA1715	RNA1723	RNA1723	RNA1724	RNA1725	
	Panel stay	RNT1179	RNT1175	RNT1175	RNT1175	RNT1175	RNT1180	
	Slide SW knob	RAC1562	RAC1562	RAC1562	RAC1562	RAC1562	RAC1540	
	Power button	RAC1703	RAC1703	RAC1703	RAC1703	RAC1703	RAC1657	
	Balance knob	RAC1705	RAC1705	RAC1705	RAC1705	RAC1705	RAC1662	
	VR knob	RAC1707	RAC1707	RAC1707	RAC1707	RAC1707	RAC1708	
	VR ring	RAT1011	RAT1011	RAT1011	RAT1011	RAT1011	RAT1010	
	Bonnet	RXX1516	RXX1516	RXX1516	RXX1516	RXX1516	RXX1506	
	Screw	.....	.....	.....	.....	.....	RBA1088	For bonnet
	Screw	ABA1148	.....	.....	.....	.....	.....	
	Packing case	RHG1493	RHG1450	RHG1494	RHG1495	RHG1496	RHG1497	
	Pad.(F)	RHA1117	RHA1119	RHA1119	RHA1119	RHA1119	RHA1119	
	Operating instructions (German/Italian/Dutch/Swedish/Spanish/Portuguese)	.....	RRD1138	RRD1138	.....	.....	RRD1138	
	Operating instructions (Spanish)	.....	.....	.....	.....	RRD1139	.....	
	Pad spacer A	.....	.....	.....	RHC1043	.....	.....	*1
	Pad spacer B	.....	.....	.....	RHC1041	.....	.....	*2
	Pin cap	.....	.....	.....	VEC1616	.....	.....	*3

Note : * TRN1 PCB and TRN1 unit has no service part.

● **Packing for HB type**



MAIN UNIT
RWZ2968, RWZ2972, RWZ2976 and following:

Mark	Symbol & Description	RWZ
	IC141	M52
	IC151, IC351	TC4
	Q141	DTC
	Q142	DTA
	D141, D958	1S
	C137, C138 (33μ/25V)	RCI
	C141, C142, C145, C146, C353, C354 (10μ/50V)	RCI
	C143, C144	CKPUY
	C147 – C150	CENA
	C351, C352 (1μ/50V)	RCI
	C903, C904 (3300μ/25V)	RCI
	C903, C904 (2200μ/25V)	..
	C113, C114, C559, C560	CENA
	C133, C134, C323, C324, C905, C906	CENA
	C252, C253	CENA
	C907, C908 (10μ/50V)	RCI
	C907, C908	..
	C911, C912 (220μ/25V)	RCI
	C911, C912	..
	R131, R132, R151, R152	RD1/6
	R143, R144, R155, R156, R365, R366	RD1/6
	R145 – R148	RD1/6
	R153, R154 (12K)	RCI
	R159	RD1/6
	R160	RD1/6
	R353, R354, R359, R360	RD1/6
	R355, R356	RD1/6
	R357, R358	RD1/6
	R361, R362	RD1/6

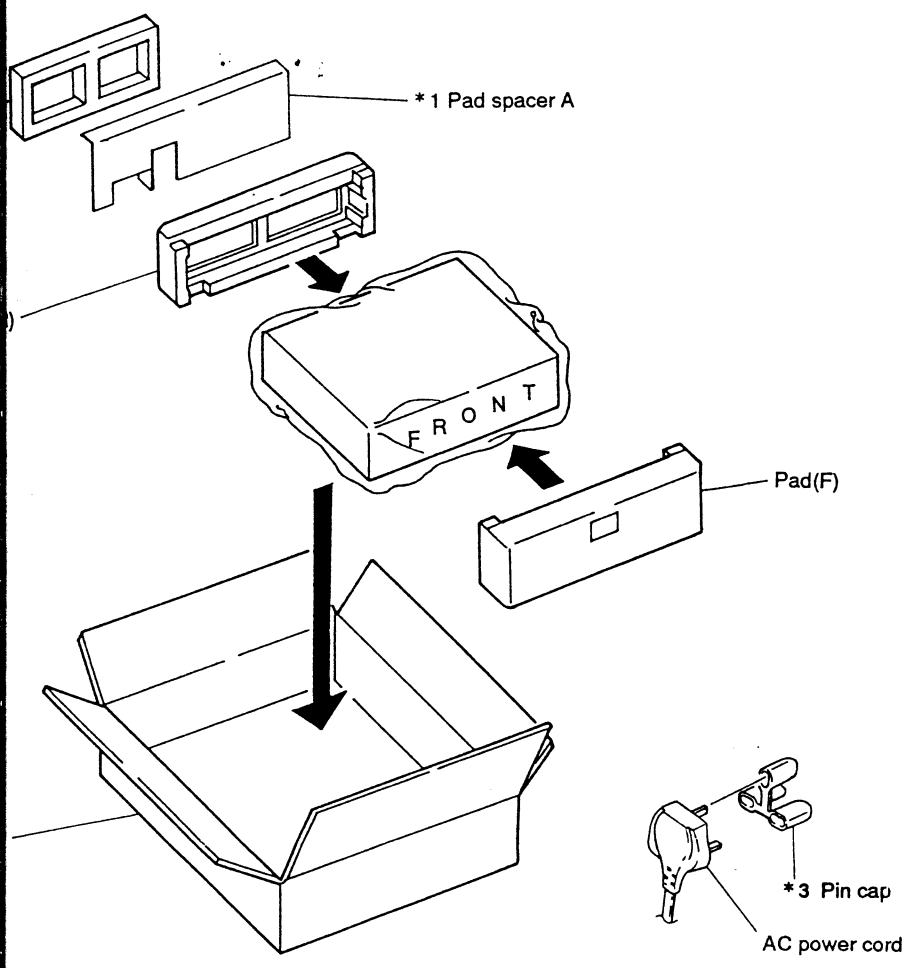
Note : Although RWZ2917 and RWZ2964 are differ

PWSW UNIT
Although RWZ2919, RWZ2969, RWZ number, they have the same service

TRN2 UNIT
Although RWZ2934, RWZ2971, RWZ number, they consist of the same c

HPHN UNIT
Although RWZ2980 and RWZ2918 a components.

FL UNIT
Although RWZ2981 and RWZ2920 a components.



76 and RWZ2964 have the same construction except for the

	Part No.				Remarks
	RWZ2964	RWZ2968	RWZ2972	RWZ2976	
	M5218AP	.....	.....	.....	
	TC4066BP	.....	.....	.....	
	DTC124ES	.....	.....	.....	
	DTA124ES	.....	.....	.....	
	1SS254	.....	.....	.....	
	RCH1083	.....	.....	.....	
	RCH1080	.....	.....	.....	
	CKPUYB122K50	.....	.....	.....	
	CENA470M25	.....	.....	.....	
	RCH1079	.....	.....	.....	
	RCH1102	.....	.....	.....	
	.....	RCH1096	RCH1096	RCH1096	
	CENA470M25	CENA470M25	CEAS101M10	CEAS101M10	
	CENA101M25	CENA101M25	CEAS101M10	CEAS101M10	
	CENA101M25	CENA101M25	CEAS470M16	CEAS470M16	
	RCH1080	RCH1080	.....	.....	
	.....	.....	CEAS100M50	CEAS100M50	
	RCH1103	RCH1103	.....	.....	
	.....	.....	CEAS101M10	CEAS101M10	
	RD1/6PM182J	.....	.....	.....	
	RD1/6PM104J	.....	.....	.....	
	RD1/6PM152J	.....	.....	.....	
	RCN1064	.....	.....	.....	
	RD1/6PM223J	.....	.....	.....	
	RD1/6PM473J	.....	.....	.....	
	RD1/6PM203J	.....	.....	.....	
	RD1/6PM103J	.....	.....	.....	
	RD1/6PM124J	.....	.....	.....	
	RD1/6PM123J	.....	.....	.....	

4 are different in part number, they consist of the same components.

9, RWZ2973, RWZ2977 and RWZ2965 are different in part service parts.

1, RWZ2975, RWZ2979 and RWZ2967 are different in part same components.

Z2918 are different in part number, they consist of the same

Z2920 are different in part number, they consist of the same

OPSW UNIT

RWZ2982 and RWZ2921 have the same construction except for the following:

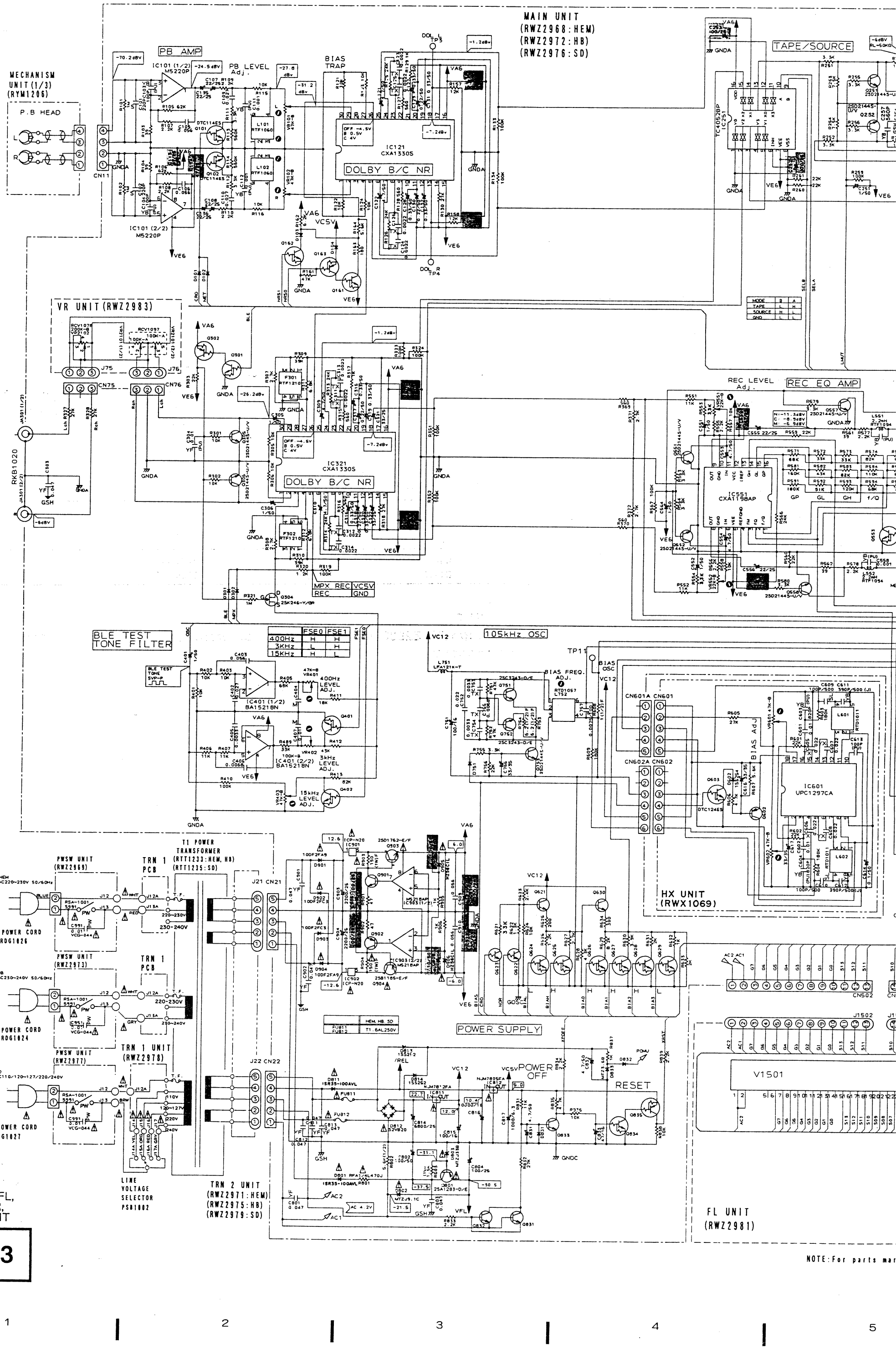
Mark	Symbol & Description	Part No.		Rema
		RWZ2921	RWZ2982	
	Q1402	DTC124ES	.....	
	D1402	SEL6910D	.....	

VR UNIT

Although RWZ2983 and RWZ2922 are different in part number, they consist of the s components.

● SCHEMATIC DIAGRAM FOR CT-S620 AND CT-S620-G

Note: For CT-S820S/HEM, refer to "6. SCHEMATIC DIAGRAM".



F MAIN,HPHN,HX,FL, OPSW,PWSW,VR, TRN 1,TRN 2 UNIT

SCH–3

NOTE: For parts mar

HPHN UNIT
(RWZ2980)

MECHANISM
UNIT (2/3)
(RYM1206)

MECHANISM UNIT (3/3) (RYM1206)

MECHA CONTROL

METER AMP

TAPE SELECT

SR
REMOCON
RKN1004
JA951

JA952
RKN1004

JA953
PKN1005

CD SYNCHRO

CONNECTOR
UNIT

OPSW UNIT
(RWZ2982)

NOTE:
Values of diodes, transistors and tact switches not shown are as follows.

- 2SC3311A-R/S
- 2SA1309A-R/S
- DTC124ES
- DTA124ES
- DTC124TS
- DTA124TS
- 1SS254
- S1401~S1413
  S1501~S1509
  RSG1030-B

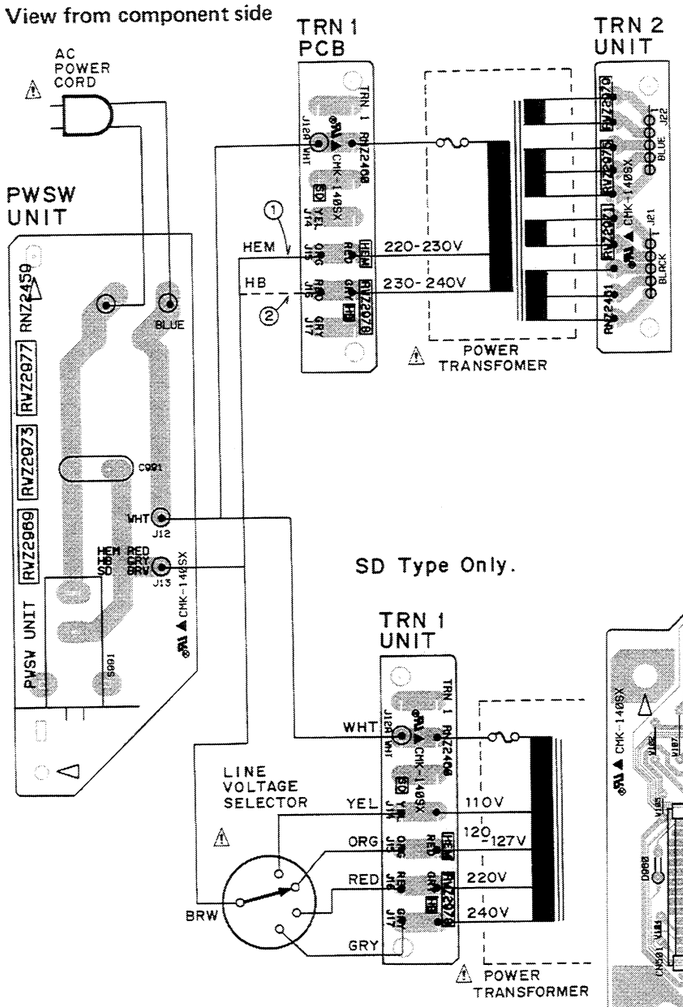
parts marked by "[illegible]", refer to page 38.

MAIN,HPHN,HX,FL,
OPSW,PWSW,VR,
TRN 1,TRN 2 UNIT

● PCB DIAGRAM FOR CT-S620 AND CT-S620-G

Note: For CT-S820S/HEM, refer to "5. PCB CONNECTION DIAGRAM".

• View from component side



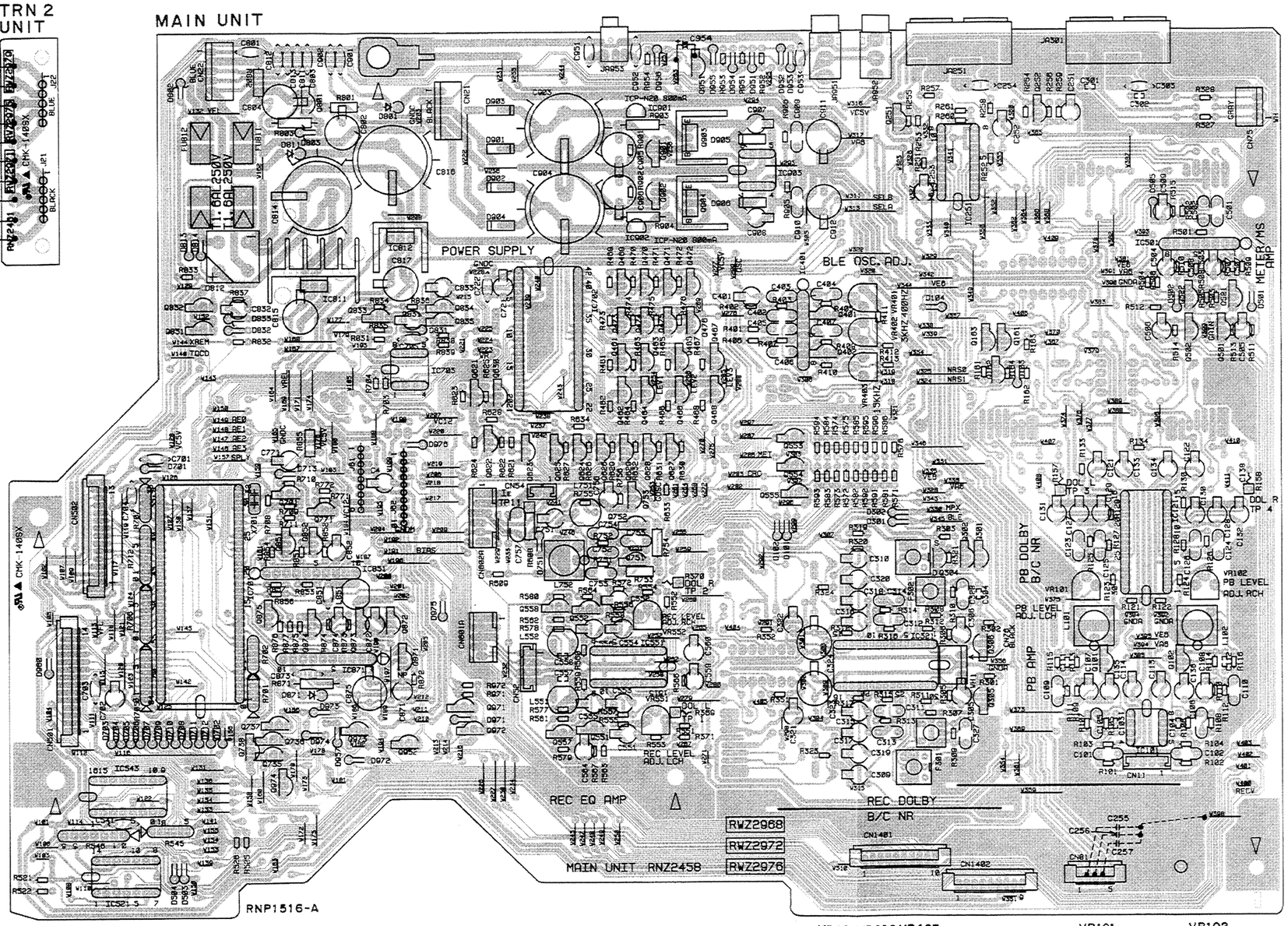
Line Voltage Selection

Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the Top cover
3. Change the position of the connection wire from PWSW unit to TRN 1 PCB as follows.

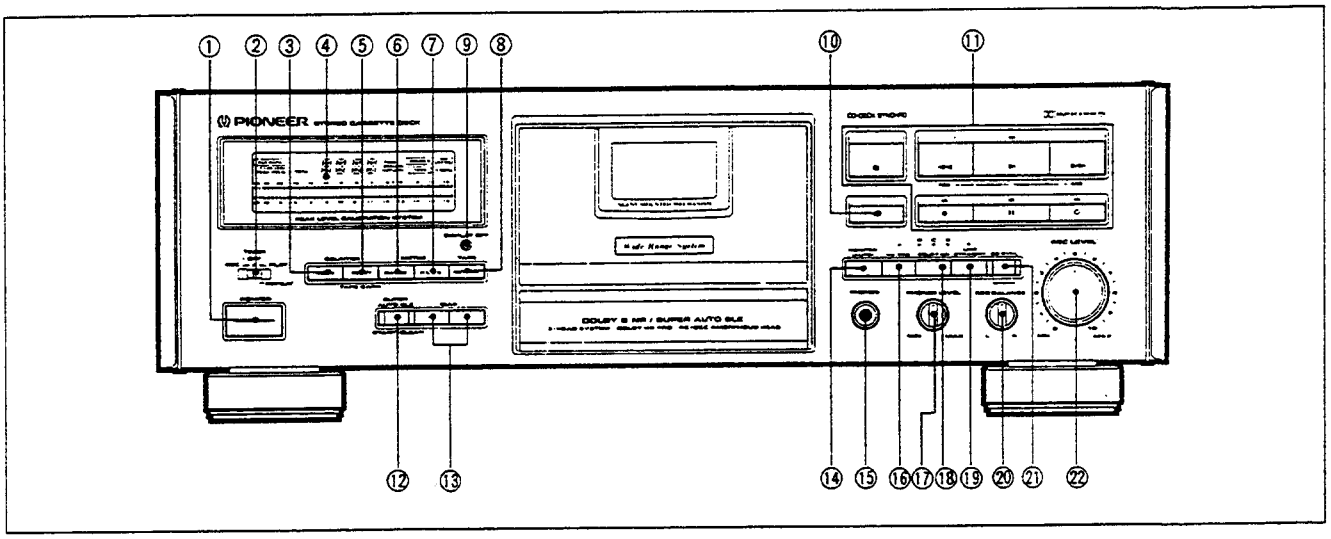
Voltage	Position of the connection wire
220V-230V	①
230V-240V	②

4. Stick the line voltage label on the rear panel.

Parts No	Description
AAX-193	220 V label
AAX-192	240 V label



11. PANEL FACILITIES



① Power switch (POWER)
After pressing the switch, the WAIT meesage will appear in the counter display and the level meter scale will flash for about four seconds (the time necessary for circuitry to stabilize). During the time the display is flashing, no operating buttons will respond, with the exception of the cassette door open/close button (⏏). To close the cassette door, do it while the power is turned on.

② TIMER mode/repeat play switch (TIMER REC/OFF/PLAY-REPEAT)
REC: Set to this position to perform timer recording.
OFF: Set to this position under ordinary conditions, (when not using the timer or repeat functions).
PLAY-REPEAT:
Set to this position to perform timer playback. When the switch is set to this position during normal playback, repeat playback of a single tape can be performed.

③ Counter mode button (COUNTER MODE)
Each time this button is pressed, one of the three modes (Normal tape counter/Timer counter/Remaining time counter) is set in sequence.

④ Function display

⑤ Counter reset/tape capacity selector button (COUNTER RESET/TAPE CAPA)
Reset the counter indication to "0000" in the normal tape counter or the time counter mode.
To indicate the correct time value in the remaining time counter mode, this button must be set in accordance with the tape used.

⑥ Level meter mode selector button (METER MODE)
Switches between wide range, expanded range, and bias display.

⑦ Level meter hold mode button (METER HOLD MODE)
Selects the display mode of the peak level.
When press this button so that the PEAK HOLD indicator lights up, the level meter holds the maximum level indications of the signal. To erase the maximum level indications, press this button again. When the PEAK HOLD indicator goes off, the level meter holds peak indications for about 1.2 second.

⑧ Tape return button (TAPE RETURN)
This button is used in the normal tape counter mode to fast forward or rewind the tape to a point near the counter reading "0000".

⑨ Display off button (DISPLAY OFF)
Press this button to turn off the function display.

⑩ Open/Close button (⏏)
Press this button to open or close the cassette door. Whenever inserting or removing a cassette tape, be sure that the power is turned on.

NOTE:
If the cassette door is closed while the unit is turned off, and the power is then turned on, the cassette door may open and close after pressing one of the operation buttons. This occurs when the microprocessor resets the door mechanism to its initial state and does not indicate any malfunctioning of the unit.

⑪ Operation buttons
■ : Stop
◀◀ : Rewind/music search
▶ : Playback
▶▶ : Fast forward/music search
● : Recording
❚❚ : Pause
O : Recording mute

⑫ SUPER AUTO BLE START/CLEAR button

⑬ Recording bias buttons (BIAS −/+)
When desired, these buttons can be used to manually adjust the recording bias after performing AUTO BLE tuning.
−: Changes tone by reducing recording bias
+: Changes tone by increasing recording bias

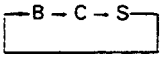
⑭ Monitor selector button (MONITOR [AUTO])
Used to monitor the source sound or adjust recorded sound during recording.
● When the unit is set to record or playback mode, the TAPE indicator lights up and monitor mode is automatically selected.

⑮ Headphones jack (PHONES)

⑯ DOLBY NR ON/OFF button
Press to turn the Dolby NR system on and off.

⑰ Headphones level control (PHONES LEVEL)

⑱ DOLBY* NR button (B/C/S)
Press to select the Dolby NR system in the following order. The selected indicator lights up on the display.



*
- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑲ MPX FILTER button

⑳ Recording balance control (REC BALANCE)

㉑ CD · DECK SYNCHRO recording button (CD SYNC)

㉒ Recording level control (REC LEVEL)